S. HRG. 114–658, PT. 3

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

ON

S. 2943

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2017 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

PART 3
READINESS AND MANAGEMENT SUPPORT

MARCH 15; APRIL 5, 12, 2016

Printed for the use of the Committee on Armed Services

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DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, MARCH 15, 2016

U.S. SENATE,
SUBCOMMITTEE ON READINESS
AND MANAGEMENT SUPPORT,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

THE CURRENT STATE OF READINESS OF UNITED STATES FORCES

The subcommittee met, pursuant to notice, at 10:03 a.m. in Room SR–222, Russell Senate Office Building, Senator Kelly Ayotte (chairman of the subcommittee) presiding.

Members present: Senators Ayotte, Inhofe, Fischer, Ernst, Kaine, Shaheen, Hirono, and Heinrich.

OPENING STATEMENT OF SENATOR KELLY AYOTTE

Senator AYOTTE. Good morning. I want to welcome our witnesses here today, the Vice Chiefs of Staff of our Armed Forces, and thank them for their leadership. This is a very important hearing of the Readiness and Management Support Committee.

As we begin this subcommittee's second hearing of the year to receive testimony on the current readiness of our military forces, I want to thank the Ranking Member, Senator Kaine, for his continued leadership on defense issues and work with me in a bipartisan manner on these incredibly important issues to the readiness of our forces.

We're joined this morning by General Daniel Allyn, the Vice Chief of Staff for the Army; Admiral Michelle Howard, the Vice Chief of Staff of Naval Operations; General John Paxton, Assistant Commandant of the Marine Corps; and General David Goldfein, the Vice Chief of Staff of the Air Force. I want to thank each of you for your leadership and service to our country, and all of those who serve underneath you. We're grateful for what they do for our country.

General Paxton, I understand that today may be one of your last, certainly, readiness force-posture hearings, but you're also the longest serving Assistant Commandant in the Marine Corps in the last 100 years.

[Laughter.]

Senator AYOTTE. You have been in that position since December of 2012. I just want to thank you for your amazing service to our country, your leadership. You are the finest. I've appreciated getting to know you in this position, and I speak for all my colleagues in saying that we just very much appreciate your distinguished service to our country and all that you and your family have done for us.

[Applause.]

General PAXTON. Thank you, Chairman. Honored to serve and to be with great battle buddies like this and to be with great marines. Thank you, Senator.

Senator AYOTTE. Thank you. Semper Fi.

On February 9th, the Director of National Intelligence, James Clapper, said, "In my 50-plus years in the intelligence business, I cannot recall a more diverse array of challenges and crises that we confront as we do today." When we consider just a few developments, it is easy to understand why Director Clapper would say that from where we even met from last year for this important hearing.

You recently testified that there are more Sunni terrorist group members and save havens than at any other point in history. Russia, a country that the commander of European Command reminds us represents an existential threat to the United States and the NATO [North Atlantic Treaty Organization] alliance as a whole, has invaded and annexed part of Ukraine while conducting a major military modernization and resuming provocative military actions that we have not seen since the Cold War.

China has invested massively in its military capabilities, steadily closing many of the technological advantages that the U.S. has enjoyed for decades. Simultaneously, Beijing is building and militarizing artificial islands in the South China Sea, an effort that seeks to bully its neighbors and challenge one of the pillars of U.S. and global trade: the freedom of navigation.

Assumptions that held true a decade or two ago regarding the absence of a peer or near-peer military competitor can no longer be taken for granted. In North Korea, an unpredictable, despotic, and nuclear-armed ruler has developed a road-mobile intercontinental ballistic missile that the commander of the Strategic Forces Command assesses is likely capable of reaching much of the continental United States.

Iran, the world's leading state sponsor of terrorism, is pocketing billions of dollars in benefits from the Iran deal while supporting Hezbollah and the murderous Assad regime and advancing Tehran's ballistic missile program to threaten our forward-deployed troops, our allies, like Israel, and ultimately our Homeland.

Meanwhile, as our communities confront horrible drug epidemics, South Command struggles with a severe lack of resources to detect and interdict drug shipments traveling to the United States. At the same time, Northern Command and its Federal partners confront a tremendous challenge in securing a porous southern border that is as vulnerable to terrorists attempting to enter our country as it is to drug smugglers.

These are just a few examples of the threats and challenges that we face and our allies confront. Yet, as these threats have grown,

our military readiness has not kept pace. Instead, we have seen a disturbing deterioration in the readiness of each of our services. Many servicemembers don't have enough time home between deployments for rest and training, undercutting full-spectrum of readiness. The readiness of nondeployed forces is not what it should be, depriving our Nation of the strategic depth that we need, given the threats that we face. Key combatant commander requirements go unmet. Critical war plans lack the necessary resources, and key modernization programs are delayed. In short, the gap between the military we need and the military we have has grown, and that gap is making—in my opinion, is a dangerous gap.

Our defense budgets must be based on our national security interests and the threats that we face to those interests, not artificial budget caps. A small percentage of our fellow citizens raise their right hands, join the military, and agree to leave their families to keep the rest of us safe. We owe them tough, realistic training as well as modern, well-maintained equipment. To provide them anything less is to neglect our moral and constitutional responsibilities. By maintaining unchallenged military superiority and preparedness, we take care of our troops, fulfill our responsibilities and make costly conflicts less likely. I look forward to hearing from each of you today regarding the readiness of each of our services and what you specifically need from Congress to ensure that we meet our needs and that we can defend our Nation, and that our most precious resource, our men and women in uniform who serve below you, and you, yourself, that you can let us know what they need to effectively do their jobs.

I also look forward to getting some specific updates that are important to my home State of New Hampshire on the arrival of the KC–46A at Pease Air National Guard Base. I want to also discuss some issues that are important to the New Hampshire Army National Guard, as well as workers at the Portsmouth Naval Shipyard as they maintain our Nation's attack submarine fleet, which is so important to our combatant commanders.

I would now like to call on our Ranking Member, Senator Kaine, for his opening remarks, and thank him for his leadership.

STATEMENT OF SENATOR TIM KAINE

Senator KAINE. Thank you, Madam Chair.

Thanks, to all the witnesses. I've enjoyed the—working together in conversations I've had with many of you in preparation for this hearing.

I want to extend my thanks to General Paxton. I gather you're the longest-serving Assistant Commandant since the very first one, Lieutenant Colonel Eli Cole, in 1915. Your penalty for that is, you've had to do this posture hearing four times. Your reward is, you won't have to do it a fifth time.

[Laughter.]

Senator KAINE. But, we're—again, we're very, very happy to celebrate with you this significant accomplishment.

You know, for many years, the recurring theme from this annual posture hearing is—remain unchanged. That is, military is stuck at an unacceptable level on the spectrum readiness—on readiness spectrum. Last week, I received a classified briefing, available to

all committee members, on this readiness question. I was really shocked, and I would encourage any member of the committee, and especially this subcommittee, to go get that same briefing. It will really put in context this readiness question in a way that will stun you.

Everything I'm going to say now is not from that classified briefing. This is open, what I'm now going to say. There are other things that I could say, but I won't.

Today, less than half of our Nation's military is ready to perform their core wartime mission. Some critical units are in far worse shape than this 50 percent. Fourteen years of sustained combat, together with the Budget Control Act of 2011, have presented the Nation with a unique readiness challenge. It's kind of the perfect storm of two significant events. That problem has no likely end in sight if we continue down the path of sequestration budget caps with the increasing operational demand that the Chairwoman described, given the state of the world.

Today, there are no—zero—fully ready Army Brigade Combat Teams, and there are only nine ready BCTs [brigade combat teams] available for unforeseen contingencies.

Less than half of the Marine Corps units are ready to perform their core wartime mission, despite having a congressionally mandated role as the Nation's crisis-response force.

Today, 80 percent of aviation squadrons do not have the required number of aircrafts to train.

Less than half of our Navy's ships are ready to ship to meet wartime plans, while deferred and unplanned maintenance continues to delay training timelines and prolong deployments. For example, ship deployments that used to be 6 months are now 8 to 10 months, which exacerbates the conditions of the ships and also creating challenges for those in the extended deployments. I look forward to digging deeper into the topic of our shipyards. We're going to have a subcommittee hearing on this on April 5th.

On the Air Force side, half of the Air Force aircraft are ready, some fighter and unmanned units are in far worse condition. This is well below the 80-percent requirement that is necessary to execute the national military strategy.

High operational tempo and the combatant command requests have left too many units with unsustainable deploy-to-dwell ratios. The ratio—the rate of operational tempo is like forcing the same five people to play an entire game of basketball without relief from the bench.

However, we, in Congress, have to admit that we've helped create these terrible conditions for our military. We can't buy you time—we can't buy time to restore readiness. It will take a while to rebuild our strategic depth. Nor can we simply buy our way out of our readiness problem. But, we can do much better in the way in which we provide you with resources. Sequestration continues to be a significant challenge and kind of a mindless menace, because it's nonstrategic. Too often, we've given DOD [Department of Defense] unpredictable funding levels, and even those appropriations have arrived late in the year or in the form of last-minute continuing resolutions. The only reason we suffer from this self-inflicted predicament is because we were not able to come together

to find a meaningful solution to a sequestration that was artificially passed by Congress in August of 2011. A lot of things have happened in the world since August of 2011. That was pre-Ebola, pre-Zika, pre-North Korean cyberattacks, pre-ISIL [Islamic State of Iraq and the Levant], pre-Russia into the Ukraine. The world has changed dramatically, and yet we're still living under a significant straightjacket.

I continue to believe, as I expressed in one of my first votes in the Senate, we need to repeal sequestration, not only for the sake of readiness, but for the sake of our full spectrum of national security needs. Our intelligence agencies, law enforcement agencies, Homeland security, international development, State Department, and domestic agencies all require relief, and we need to work together to make this happen.

General Allyn, I know it's a few months before your son graduates from West Point, but I want to, as I conclude, congratulate both you and him today. We both have sons in the military, and we owe them, and all future generations, our thanks. I want to congratulate you on that.

Then, Madam Chair, thanks for pulling this hearing together. I know that we're going to have an awful lot to talk about.

Senator AYOTTE. Thank you, Senator Kaine. Appreciate your leadership.

I would like to call on, first, for testimony, General Daniel Allyn, the Vice Chief of Staff of the United States Army.

STATEMENT OF GENERAL DANIEL B. ALLYN, USA, VICE CHIEF OF STAFF, UNITED STATES ARMY

General ALLYN. Thank you, Madam Chair Ayotte, Ranking Member Kaine, distinguished members of the subcommittee. Thanks for inviting me to testify on the readiness of your United States Army.

We live in a dangerous world, as you've both talked about. After more than 14 years of continuous combat, it is tempting to hope that a respite lies just over the horizon. Instead, the velocity of instability is increasing, and demand for Army forces across a range of military operations is increasing.

At current end strength, the Army risks consuming readiness as fast as we build it. Today, the Army is globally engaged, with more than 186,000 Total Force soldiers deployed in support of combatant commanders in over 140 countries. These soldiers conduct combat operations, deter aggression, and assure our allies and partners.

In Afghanistan, the Army continues to train, advise, and assist Afghan National Security Forces to defeat the enemies of our country. In Iraq, we build partner capacity to fight the Islamic State of Iraq and the Levant. In Africa and throughout the Americas, we partner to prevent conflict and to shape the security environment. In the Pacific, more than 75,000 soldiers remain committed, including 20,000 who stand ready in the Republic of Korea. In Europe and Asia, Army forces reassure allies and deter Russian aggression. At home and in every region of the world, the Army stands ready.

This is why readiness is, and must remain, the Army's number-one priority. Training is the bedrock of that readiness. To provide trained and ready forces to combatant commanders, the Army must

conduct realistic and rigorous training across multiple echelons. Realistic training demands predictable and sustained resources in both time and money. To ensure a trained and ready Army today, the Army is accepting considerable risk by reducing end strength while deferring modernization programs and infrastructure investments. These tradeoffs are reflections of constrained resources, not strategic insight.

The Army requests congressional support to rebuild readiness, maintain end strength, equip our soldiers with the best systems now and in the future, and provide soldiers and their families with quality of life commensurate with their unconditional service and their sacrifice. With your assistance, the Army will continue to produce the best-trained, best-equipped, and best-led Army forces to fight as our Nation calls them.

We thank Congress for your steadfast support of our outstanding men and women in uniform, our Army civilians, our families, and our veterans. They deserve our best effort.

Thank you again for allowing me to join you today, and I look forward to your questions.

[The prepared statement of General Allyn follows:]

PREPARED STATEMENT BY GENERAL DANIEL ALLYN

INTRODUCTION

Chairman Ayotte, Ranking Member Kaine, distinguished Members of the Subcommittee, thank you for the opportunity to testify on the readiness of your United States Army. On behalf of our Acting Secretary, the Honorable Patrick Murphy, and our Chief of Staff, General Mark Milley, I would also like to thank you for your support and demonstrated commitment to our soldiers, Army civilians, families, and veterans.

We live in a dangerous world, and after more than 14 years of continuous combat, it is tempting to hope that a respite lies just over the horizon. Instead, the global security environment remains unstable and continues to place a high demand on the Army. Instability across Europe, the Middle East, Africa, and the Pacific, coupled with continued threats to the Homeland, demand our Army remain an indispensable foundation of the Joint Force while we simultaneously build the Army for the future.

Today, the Army is globally engaged with more than 186,000 soldiers supporting combatant commanders in over 140 countries. These soldiers conduct combat operations, deter aggression, and assure our Allies and partners. In Afghanistan, the Army continues to engage the enemy as we work with Allies and partners to train, advise, and assist Afghan National Security Forces. In Iraq, we build partner capacity to fight the Islamic State of Iraq and the Levant. In Africa, and throughout the Americas, we partner to prevent conflict and shape the security environment. In the Pacific, more than 75,000 soldiers remain committed, including 20,000 who stand ready in the Republic of Korea. In Europe and Asia, Army forces reassure Allies and deter Russian aggression. At home and supporting every region of the world, the Army stands ready.

In this unstable and unpredictable world, the Army is called to lead. We are called to lead because the Army delivers the essential backbone that provides foundational capabilities to Joint, interagency, and multi-national teams. America's Army remains capable of compelling the Nation's enemies through decisive action and our Army is called to lead because we are trusted professionals. It is the character, competence, and commitment of our soldiers that makes our Army the greatest land force in the world today.

To meet the demands of today's security environment and maintain the trust placed in us by the American people, our Army requires sustained, long term, and predictable funding. Although the Bipartisan Budget Act (BBA) of 2015 provided short-term relief, funding levels have not kept pace with the realities of the strategic environment. The fiscal year 2017 Army Budget base request of $125.1 billion is $1.4 billion less than the fiscal year 2016 enacted budget of $126.5 billion. While the budget provides a modicum of predictability, it is insufficient to simultaneously

rebuild decisive action readiness and modernize. To ensure sufficient readiness for the demands of today's operating environment, the Army must assume risk by reducing end-strength, delaying modernization, and deferring infrastructure recapitalization and investment. These trade-offs mortgage future readiness.

Absent additional legislation, the caps set by the Budget Control Act of 2011 will return in fiscal year 2018, forcing the Army to further draw down end strength, reduce funding for readiness, and increase the risk of sending under-trained and poorly equipped soldiers into harm's way—a preventable risk our Nation must not accept. We request Congressional support of the fiscal year 2017 President's budget request that will fund readiness, maintain end-strength, equip our soldiers with the best systems now and in the future, and provide soldiers and their families with quality of life commensurate with their unconditional service and sacrifice.

Readiness: Manning, Training, Equipping/Sustaining and Leader Development

Readiness is the Army's number one priority. The Army's primary focus on counterinsurgency operations for the last decade shaped a generation of leaders and imparted invaluable skills and experience across the force. This mission focus forced us to accept developmental trade-offs. Fourteen years of sustained counter-insurgency operations degraded the Army's ability to conduct operations across the entire spectrum of conflict and narrowed the experience base of our leaders. The global security environment now demands a shift in focus to support Joint operations against a wide range of threats in diverse environments. The ability to conduct combined arms maneuver in support of the Joint Force to deter, deny, compel, and defeat the threat of hybrid warfare represents the benchmark by which we will measure our future readiness.

A ready Army is a fully manned, well trained, well equipped, and competently led force able to conduct Joint missions to deter and defeat a wide range of adversaries. A ready Army enables the Joint Force to protect our Nation and win decisively in combat.

Manning:

At today's end-strength, the Army risks consuming readiness as fast as we build it. Today, the Army has one third fewer Brigade Combat Teams (BCT) than it did in 2012, yet emergent demand for Army forces across Combatant Commands has increased by 23 percent during the same period. Reductions to end-strength below the current plan will reduce the Army's ability to meet emerging global requirements, affecting combatant commanders' efforts to prevent conflict and shape their security environments.

Demand for Army forces, combined with current end-strength limitations, will reduce the Army's capacity to support the National Military Strategy. Of the Army's 20 Ready or Fully Ready BCTs, 11 are already committed to Combatant Command missions around the globe, leaving only nine to provide strategic flexibility for unforecasted contingencies. To address this reality, manage risk, and maximize readiness of our fighting formations, we reorganized our BCTs, implemented the Sustainable Readiness Model (SRM), and optimized the contributions from all components of our Total Army.

In fiscal year 2015, the Brigade Combat Team reorganization enhanced the combat effectiveness of our fighting units by adding a third maneuver battalion to CONUS BCTs while reducing the total number of BCTs from 73 to 60 (32 Active Army and 28 Army National Guard) in the Total Force. Although we cut 13 BCTs, we retained 93 of our original 100 maneuver battalions, decreased the number of headquarters and personnel, and retained combat power with our operational battalions.

To ensure the highest level of readiness throughout the Army, we initiated a Total Force effort to generate, assess, and monitor readiness through the Sustainable Readiness Model. SRM is an enduring process that enables the Army to clearly analyze and evaluate readiness, optimize resources and unit activity, and minimize risk. The end state of the SRM is to build and sustain the highest possible readiness levels across the Total Force.

Optimizing readiness requires an appropriate mix of forces across Active, National Guard and Reserve units. Given increasing global demand, a smaller Active Army requires all components to increase deployment frequency. To support Joint Force requirements worldwide over the last 14 years, the Army increased operational use of the Army National Guard and the Army Reserve. We will continue this trend. With the support of Congress, the Army can maintain the appropriate force mix capable of conducting sustained operations worldwide.

To this end, the Army appreciates the insights of the National Commission on the Future of the Army. We are carefully assessing their recommendations for potential

implementation to increase Army readiness, consistent with statute, policy, and available resources. Implementation of recommendations will require a coordinated effort across the Army's three components. The Army's ongoing analysis will determine if implementation requires additional funding.

Training:

Training is the bedrock of readiness. To provide trained and ready forces, the Army must conduct realistic and rigorous training across multiple echelons. Realistic training demands predictable and sustained resources, in time and money. To ensure a trained and ready Army today, the Army accepts considerable risk by reducing end-strength while deferring modernization programs and infrastructure investments. These trade-offs are reflections of constrained resources, not strategic insight. But, given end-strength reductions, budget constraints, and global demand, the Army prioritized building decisive action proficiency to rebuild readiness across the force and assure a predictable flow of trained and ready forces for Combatant Command requirements.

Today, less than one-third of Army forces are at acceptable levels of readiness to conduct sustained ground combat in a full spectrum environment against a highly lethal hybrid threat or near-peer adversary. To mitigate this risk, the Army will continue to prioritize readiness. In addition to fully funding CTC rotations, the Army is establishing objective training standards, reducing non-essential training requirements, and protecting home station training to increase training rigor and readiness in our formations. We will build decisive action proficiency through repeated, high quality training iterations at home station before units attend CTC rotations, while sustaining the readiness of our remaining forces. This strategy enables the most effective and efficient use of training resources and focuses our leaders to optimize readiness across the Army.

A ready Army requires highly trained units across all components. To build sufficient operational and strategic depth, the Army is exploring a number of initiatives to build increased readiness in our Reserve Component units. This includes increasing the number of annual training days to provide sufficient repetition in core tasks; building multi-component and round-out units to enhance Total Force integration; and expanding CTC rotations for National Guard BCTs from two to four annually. These initiatives would provide readiness for current operations and ensure strategic depth required for future campaigns, and will require increased funding.

Equipping/Sustaining:

A trained and ready Army requires modernized equipment to win decisively. This includes the equipment soldiers use in combat and the infrastructure that supports them as they prepare, deploy, and return from battle. Technological overmatch against our adversaries is a hallmark of America's Army and as leaders, we have an obligation to deploy our soldiers into combat with the best equipment our Nation can provide.

However, an unintended consequence of current fiscal constraints is that the Army can no longer afford the most modern equipment, and we risk falling behind near-peers in critical capabilities. Decreases to the Army budget over the past several years significantly impacted Army modernization. Since 2011, the Army ended 20 programs, delayed 125 and restructured 124. Between 2011 and 2015, Research and Development and Acquisition accounts plunged 35 percent. Procurement alone dropped from $21.3 billion to $13.9 billion. Given these trends, and to preserve readiness in the short term, the Army has been forced to selectively modernize equipment to counter our adversary's most pressing technological advances and capabilities. These decisions increase the time necessary to defeat an adversary, increase risk to mission, and potentially increase casualty rates. It reflects the best of bad options, given current fiscal constraints.

The Army developed the Army Equipment Modernization Strategy to preserve readiness in the short term and manage risk in the mid to long term. The strategy reflects those areas in which the Army will focus its limited investments for future Army readiness. We request the support of Congress to provide flexibility in current procurement methods and to fund the five capability areas—Aviation, the Network, Integrated Air Missile Defense, Combat Vehicles, and Emerging Threats—to provide the equipment the Army requires to fight and win our Nation's wars.

To provide greater Aviation combat capability at lower cost, the Army continues to execute the Aviation Restructuring Initiative (ARI). Today, ARI is fully underway and the benefits of our hard choices are starting to show. The Army has already inactivated one Combat Aviation Brigade, converted the 12th Combat Aviation Brigade, inactivated seven Air Cavalry Squadrons, divested nearly all of the OH58D fleet, stopped all TRADOC OH–58D training, transferred 66 LUH aircraft to Fort

Rucker, and transferred 28 UH–60Ls to the National Guard and eight MEDEVAC UH–60s to the Army Reserve. Additionally, the Army is examining the recommendations of the National Commission on the Future of the Army as we work to ensure the most modern Aviation capabilities are ready now while underwriting critical modernization efforts to build the future Aviation force.

The Army Network provides foundational capabilities to the Joint Force, requiring the Army to maintain a robust Network hardened against cyber-attacks. Key investments in the Army Network are Warfighter Information Network-Tactical; assured position, navigation, and timing; communications security; and defensive and offensive cyberspace operations. Given the rapid advances in the cyber warfare capabilities of our adversaries, these investments ensure access to reliable, timely, and secure information, enabling our Joint Force to sustain a decisive advantage.

The Army is investing in Integrated Air Missile Defense to defeat a wide array of threats, from micro unmanned aerial vehicles to cruise missiles and medium range ballistic missiles. The Army will continue to upgrade the Integrated Air and Missile Defense Battle Command System, Indirect Fire Protection Capability, and Patriot missile system. These investments ensure the Joint Force remains capable and ready to defeat the most advanced adversaries in an array of contested environments.

Army improvements to Combat Vehicles focus on the Ground Mobility Vehicle, Stryker lethality upgrades, Mobile Protected Firepower, and the Armored Multi-Purpose Vehicle. These investments ensure future Army maneuver forces retain the optimal capability in expeditionary maneuver, air-ground reconnaissance, joint combined arms maneuver, and wide area security.

Finally, the Army addresses emerging threats by focusing Science and Technology investments on mature technologies with the greatest potential for future use. We are investing in innovative technologies to protect mission-critical systems from cyber-attacks, enhance active protection systems for both ground and air weapons systems, improve aircraft survivability, expand future vertical lift, and employ cutting-edge directed energy, cyber, and integrated electronic warfare weapons.

To prioritize readiness, a second area in which the Army assumes risk is in installation modernization and infrastructure improvement. Installations are the Army's power projection platforms and a key component in generating readiness. To build readiness, however, the Army has been forced to cancel or delay military construction, sustainment, restoration and modernization across our posts, camps and stations. Additionally, the Army reduced key installation services, individual training programs, and modernization to a level that impacts future readiness and quality of life. In addition to effects on soldier quality of life, these cuts force commanders to divert soldiers from training to perform life-support tasks. We estimate an annual burden of at least $500 million to operate excess or underutilized facilities—an amount that would fund an Armored BCT European Activity Set for almost an entire year.

The deliberate decision to prioritize readiness over Army modernization and installation improvement is an unfavorable choice. To meet current operational requirements, however, combatant commanders employ almost one-third of the Active Army and regularly require access to critical Reserve component capabilities. If in the midst of these current operations the Army is directed to support a major war plan, the additional requirements will consume the rest of the Army—all three components—for the duration of the conflict. This imperative requires the Army to maximize the readiness of our remaining forces while managing future risk as best we can.

Leader Development:

The single most important factor in delivering Army readiness, both now and in the future, is the development of decisive leaders of character at every echelon. In a complex and uncertain world, the Army will cultivate leaders who thrive in uncertainty and chaos. Our creative, adaptive, and agile leaders deliver success on the battlefield and sustain our All Volunteer Force.

To ensure the Army retains this decisive advantage, we are increasing funding for leader development across the force; from the individual, unit, and institution level. This year, the Army will train approximately 130,000 leaders from all three components in its Professional Military Education programs. We instituted the Select, Train, Educate and Promote process to improve leader development of non-commissioned officers and we continue to enhance the strategic development of our officers through broadening assignments in graduate school, inter-agency fellowships, and training with industry. Despite budget constraints, we will continue to fund these priority programs, targeted to develop leaders who demonstrate the necessary competence, commitment and character to win in a complex world.

Decisive leaders also strengthen the bond between our Army and the Nation and preserve our All-Volunteer Force. Empowered leaders instill the Army values in our soldiers and uphold the high standards that our Nation expects. As Army leaders, we continue to express our enduring commitment to those who serve, recognizing that attracting and retaining highly-qualified individuals in all three components is critical to readiness. This is why our fiscal year 2017 budget request includes key initiatives that support leaders of character in mitigating the unique challenges of military life, fostering life skills, strengthening resilience, and promoting a strong and ready Army.

The Army is expanding our Soldier for Life program to drive cultural change. Our soldiers will receive the tools to succeed across the continuum of their Service to our country, in or out of uniform. As they return to civilian life, soldiers will continue to influence the most talented young people to join the Army and, along with retired soldiers and veterans, retain the vital link with our Nation's communities. As we reduce the Army's end-strength, we owe it to our soldiers and their families to ensure our veterans strengthen the prosperity of our Nation through rewarding and meaningful civilian careers and service to their communities.

Committed and engaged leadership is the focal point of our SHARP prevention efforts. The Army's "Not in My Squad" program is a grass roots initiative to develop a unit culture that prevents sexual harassment and sexual assault. The Army instituted a SHARP Resource Center pilot program; a "one-stop shop" to coordinate and support all SHARP services on an installation. Cadet Command has 232 Reserve Officer Training Corps programs that have signed partnership charters with civilian academic institutions, and cadets serve as peer mentors, bystander intervention trainers, and sexual assault prevention advocates. Future Army initiatives will continue to focus on prevention through the use of "I. A.M. Strong" and "Not In My Squad" campaigns. These holistic prevention efforts will shape Army culture and enrich Army readiness.

Army leaders remain committed to building diverse teams. Opening the Army to all qualified citizens of our Nation builds upon the best the United States has to offer. Diversity of thought strengthens our bonds with America and builds readiness by contributing diverse solutions to complex problems. The Army is in full compliance with the Department's Women in Service Review and is prepared to fully integrate women in all occupational specialties. The Army's deliberate process validated standards, grounded in real-world operational requirements, and will provide our integrated professional force the highest level of readiness and potential for mission success.

Decisive leaders are essential to maintaining a ready Army, composed of resilient individuals and cohesive teams, capable of accomplishing a range of operations in environments of uncertainty and persistent danger.

CLOSING

Today, our Army stands ready to defend the United States and its interests. This requires sustained, predictable funding. To rebuild readiness today and prepare for tomorrow's challenges, the Army has prioritized decisive action readiness required to respond to current security challenges. The difficult trade-offs in modernization and installation improvements reflect the hard realities of today's fiscal constraints.

The strength of the All-Volunteer Force is our soldiers, civilians and their families, and we must do all we can to ensure they stay ready. History provides recurring testimony to past failures to heed this harsh reality, which ultimately falls on the backs of our soldiers. With your assistance, the Army will continue to resource the best-trained, best-equipped and best-led fighting force in the world. We thank Congress for the steadfast support of our outstanding men and women in uniform, our Army Civilians, Families, and Veterans. They deserve our best effort.

Senator AYOTTE. Thank you, General Allyn.

I'd like—I'd now like to call on Admiral Howard, the Vice Chief of Staff of Naval Operations.

STATEMENT OF ADMIRAL MICHELLE J. HOWARD, USN, VICE CHIEF OF NAVAL OPERATIONS, UNITED STATES NAVY

Admiral HOWARD. Chairman Ayotte, Senator Kaine, and distinguished members of the subcommittee, it is my honor to represent the thousands of Navy sailors and civilians who sustain operations around the globe.

I appreciate the opportunity to testify on the current state of Navy readiness and the projected changes to that readiness with the fiscal year 2017 budget request. This budget submission provides the resources for our deployed forces and supports our continued readiness recovery efforts. This submission also contains the hard choices and tradeoffs we made to achieve future warfighting capability. In a design for maintaining maritime superiority, the Chief of Naval Operations, Admiral Richardson, has challenged the Navy team to meet the demands of our mission along four lines of efforts. First, the readiness funding directly contributes to strengthening naval power at and from sea. Navy readiness organizations are actively engaged in efforts to meet the second line of effort, to achieve high-velocity learning at every level by investing in our sailors through new and reinvigorated training programs. We support the third line of effort to strengthen our Navy team for the future by employing innovative training methodologies to accelerate productivity of new shipyard employees. Lastly, we strive to expand and strengthen our network of partners in order to meet our most critical challenges. We have reached out to industry to address our shipyard and aviation depot workload. Our budget request supports the design, and, if executed, will result in continued operational excellence throughout our Navy.

The demand for naval assets by global combatant commanders remains high, and Navy continues to provide maximum sustainable global presence. Supporting this posture requires a commitment to protect the time and funds needed to properly maintain and modernize our force. Full recovery of the material readiness of the fleet is likely to extend beyond 2020. Stable funding, improvement in on-time execution of ship and aviation depot maintenance, and steady-state operations are required to meet our fleet readiness goals.

As we proceed on the road to recovery for float operational units, we continue to do so by taking conscious risk in the maintenance of our shore infrastructure. To mitigate impacts ashore, Navy has made difficult decisions and focused on items directly tied to our primary missions. As a tradeoff, Navy continues to postpone much needed repairs and upgrades for the majority of our infrastructure.

Continued shortfalls in our facility sustainment will eventually have effects on our sea readiness model. Failing to plan for these necessary investments will continue to slow our future recovery. We are still paying down the readiness debt we accrued over the last decade, but more slowly than we would prefer and at continued risk to our shore infrastructure.

Powered by our exceptional sailors and civilians, your Navy is the world's finest, and we are committing to retaining our superiority. This budget represents a margin of advantage over our adversaries. That margin could be lost if we do not achieve stable budgets. We can only maintain our status as the world's greatest Navy with constant vigilance, dedication to restoring our readiness, and a commitment to sustain forces around the globe.

With that, I'd like to depart from my prepared remarks with one caveat. Senator Kaine, you talked about August of 9/11 as a milestone. For my Navy, there's another issue that's capacity all of its own as it affects readiness. On another 9/11, I was in the Pentagon. At the end of that timeframe, when we—when 9/11 happened, we

had 14 carriers, we had over 300 ships, and we had 60,000 more people in the United States Navy. During this time of conflict, we have become more efficient, we are a smaller Navy, but we are at 272 ships, as of today. That's ships and submarines. We are growing back to over 308 ships, and I appreciate the support of this committee in understanding the purpose of the Navy and helping us get back to where I believe we need to be, in terms of capacity. We've got to have a certain core capacity in order to achieve readiness for the warfight.

I extend my thanks to all of you for your efforts in continue to support.

Thank you.

[The prepared statement of Admiral Howard follows:]

PREPARED STATEMENT BY ADMIRAL MICHELLE HOWARD

Chairman Ayotte, Senator Kaine, and distinguished members of the Senate Armed Services Subcommittee on Readiness and Management Support, I appreciate the opportunity to testify on the current state of Navy readiness and projected changes to that readiness with the fiscal year 2017 budget request. This budget submission provides the resources to deliver sustainable deployed forces and supports our continued readiness recovery efforts. The submission also contains the hard choices and tradeoffs we were obligated to make in order to achieve future warfighting capability.

America's security and prosperity are inextricably linked to maritime freedom. With over 90 percent of our trade traveling the seas, the fiscal year 2017 Navy budget submission provides a thoughtful approach to meeting our security challenges within our budgetary means. We have balanced capability and capacity, delivered current and future readiness, and postured our forces to meet geographic combatant commanders' (GCCs) missions, while rebuilding our contingency response posture in a difficult budget environment. Although we have seen improvements in rebuilding the workforce in both our public shipyards and aviation depots, we have not yet recovered from the readiness impacts resulting from a decade of combat operations. The cumulative effect of budget reductions, complicated by four consecutive years of continuing resolutions, continues to impact maintenance, afloat and ashore. The secondary effects of these challenges impact material readiness of the force, and the quality of life of our sailors and their families.

In "A Design for Maintaining Maritime Superiority" the Chief of Naval Operations, Admiral Richardson, has challenged the Navy team to meet the demands of our mission along four lines of effort. The readiness funding accounts directly contribute to *Strengthening Naval Power at and from Sea.* In addition, Navy readiness organizations are actively engaged in efforts to *Achieve High Velocity Learning at Every Level,* by investing in our sailors through new and reinvigorated training programs, and to *Strengthen our Navy Team for the Future,* by employing innovative training methodologies to accelerate productivity of new shipyard employees. To meet our most critical challenges, we must also *Expand and Strengthen our Network of Partners.* We have reached out to industry to meet some of our most critical challenges in shipyard and aviation depot workload. Our budget request supports this Design and if executed will result in continued operational excellence throughout our Navy.

Although our readiness shows improvement, recovery is not yet complete. Full recovery of the material readiness of the Fleet is likely to extend beyond 2020. Stable funding, improvement in on-time execution of ship and aviation depot maintenance, and steady state operations are required to meet our Fleet readiness goals. As we proceed on the road to recovery for afloat operational units, we continue to do so by taking conscious risk in the recapitalization, maintenance, and operation of our shore infrastructure. To mitigate impacts ashore, Navy has made difficult decisions and focused on shore items directly tied to our primary missions.

My testimony today will focus on the current readiness of the Navy as set forth in our fiscal year 2017 budget submission, provide an overview of our readiness recovery efforts to restore our contingency response posture, and address challenges to delivering future readiness.

CURRENT NAVY OPERATIONS AND MISSION READINESS

The demand for naval assets by the GCCs remains high, and Navy continues to provide the maximum sustainable global presence it can generate to support a diverse array of GCC missions. Today, the *Harry S Truman* Carrier Strike Group (CSG) is underway in the CENTCOM area of responsibility while the *John C Stennis* CSG conducts operations in the Western Pacific. The *Stennis* CSG will also support RIMPAC 2016 this summer. This is the first year since 2009 that Navy has been able to provide a CSG to PACOM while the forward deployed CSG was in maintenance. Over the past twelve months, three CSGs conducted strike missions against ISIS in support of Operation Inherent Resolve. Four Amphibious Readiness Groups (ARGs) with embarked Marine Expeditionary Units (MEUs) supported a wide range of missions including maritime security operations, strike missions against ISIS and blockade support off the coast of Yemen as part of Operation Restore Hope. Closer to home, fleet ocean tug USNS *Apache* (T–ATF 172) embarked a deep-water search and salvage team and successfully located the U.S. flagged merchant vessel El Faro after her sinking off the coast of the Bahamas during Hurricane Joaquin. Across the globe, the Navy supported other critical GCC missions such as theater security cooperation, anti-piracy, counter-drug, ballistic missile defense, and Intelligence, Surveillance, and Reconnaissance. Missions such as these not only demonstrate our responsiveness and warfighting prowess, but maintain our sailor proficiency, a key aspect of readiness which can only be bought with time at sea.

The Optimized Fleet Response Plan (OFRP), in conjunction with ongoing Fleet material condition reset efforts, is designed to support Navy's overall readiness recovery goals and maximize the employability of our operational units for both sustainable presence and contingency response. To date, three CSGs and four ARGs have been inducted into OFRP. In 2016, the *Dwight D. Eisenhower* CSG will be the first to deploy under the OFRP construct. Fleet implementation of OFRP for CSGs is scheduled to be complete in fiscal year 2021 with the deployment of the *Gerald R Ford* CSG. While it is difficult to pinpoint an exact readiness recovery timeframe for each of our force elements given the array of factors involved, we predict CSG readiness recovery will occur slightly outside of the Future Year Defense Program (FYDP). ARG recovery will remain constrained until we complete modernization of our large deck amphibious ships to include the capability to operate the F–35B. Key to our success is operating the battle force at a sustainable level over the long term. As stated in fiscal year 2016 testimony, readiness recovery requires a commitment to protect the time needed to properly maintain and modernize our capital-intensive force and to conduct full-spectrum training. Achieving full readiness also requires us to restore capacity and throughput at our public shipyards and aviation depots, primarily through hiring and workforce development. Successful efforts in meeting hiring goals have been largely achieved. OFRP allows us to recover material readiness without hindering our forward presence, provide our sailors and their families with predictable deployment schedules, and preserve our force structure so that it meets service life expectations.

STRENGTHENING NAVAL POWER AT AND FROM THE SEA

The Navy's fiscal year 2017 budget request ensures the readiness of our deployed forces to operate and fight decisively, meets the adjudicated requirements of the fiscal year 2017 Global Force Management Allocation Plan (GFMAP), and supports implementation of the Optimized Fleet Response Plan. In fiscal year 2017, Navy will stabilize deployment length for the first time in many years. For fiscal year 2017, no Navy ship is scheduled to deploy for greater than seven months. The establishment of this important tenet of OFRP will help instill the predictability required for our shipyards and aviation depots. In addition, the predictability is a positive quality of life factor for our sailors and their families. This is a major milestone in Navy's ongoing readiness recovery.

Ship Operations

The baseline Ship Operations request for fiscal year 2017 provides an average of 45 underway steaming days per quarter for deployed ships and 20 days non-deployed, and supports the highest priority presence requirements of the combatant commanders. With Overseas Contingency Operations (OCO) funding, ship operations are funded at 58 steaming days deployed and 24 days non-deployed. This total funding allows Navy to meet the fiscal year 2017 ship presence requirement, supports the higher operational tempo for deployed forces, and provides full funding for ships deployed or preparing to deploy. This account also supports spare parts inventories, organizational level maintenance consumables, and administrative and

travel requirements. Because of a constrained top line the Navy took risk. Those latter elements of the Ship Operations account were reduced for one year to 90 percent of the requirement. This funding reduction will have some impact on the restocking of spare parts for non-deployed ships, but is recoverable if addressed in the next budget cycle.

Air Operations (Flying Hour Program)

The Flying Hour Program (FHP) funds operations, intermediate and unit-level maintenance, and training for nine Navy Carrier Air Wings, three Marine Corps Air Wings, Fleet Air Support aircraft, training squadrons, Reserve forces, and various enabling activities. Combined baseline and OCO funding will be required to maintain current and future levels of readiness for deployment. OCO funding also supports additional deployed operating tempo to meet combatant commander requirements above baseline funding. All Navy and Marine Corps aviation squadrons deploy with their full entitlement of aircraft, however some squadrons are challenged to achieve their required training readiness levels in early phases of the operational cycle, or following deployment due to shortfalls in available aircraft. To improve depot throughput, the Naval Aviation Enterprise is aggressively tackling three initiatives that include decreasing Work in Progress (WIP), reducing cycle time, and increasing capacity which will restore combat sustainment readiness levels.

Spares

While replenishment of "off the shelf" spares used in ship and aircraft maintenance is funded through the Ship Operations and Flying Hour Programs, the provision of initial and outfitting spares for new platforms, systems, and modifications is funded through the procurement appropriation spares accounts (APN/OPN). In recent years, these accounts have been funded below requirements due to budget constraints. fiscal year 2017 sustains sufficient funding levels to reduce the cross-decking between units and cannibalization of parts driven by unfilled requisitions. fiscal year 2017 starts to stabilize funding necessary to ensure parts are available when needed. This is complemented by Navy-wide efforts to improve execution of these accounts, which has achieved considerable success in aviation spares by meeting first year execution benchmarks over the last three years.

Sustaining the Force—Ship and Aircraft Maintenance

The Navy maintenance budget requests are built upon independently certified models, reflecting engineered maintenance plans for each ship class and aviation type/model/series. Our shipyards and aviation depots have been challenged by emergent work beyond that expected, associated with a decade of high tempo operations and additional wear on assets. The workforce behind our public and private depots is no longer sufficient for these emergent projects and is still in the midst of rebuilding and training new workers.

Resetting our surface ships and aircraft carriers after more than a decade of war led to significant growth in public and private shipyard workload. The Navy baseline budget request funds 70 percent of the ship maintenance requirement across the force, addressing both depot and intermediate level maintenance for carriers, submarines and surface ships. OCO funding provides the remaining 30 percent of the baseline requirement and allows for the continued reduction of surface ship lifecycle maintenance backlogs. For the second year, the additional OCO request to support Navy's maintenance reset ($625 million) includes funding for aircraft carriers (CVNs) in addition to other surface fleet assets, to address increased wear and tear outside of the propulsion plant. Since much of this reset work can only be accomplished in a drydock, the maintenance schedule needs to be closely managed, as reset is expected to continue across the FYDP.

To address the increased workload in our public shipyards and improve on-time delivery of ships and submarines back to the Fleet, the fiscal year 2017 budget promotes growth in our shipyard workforce, sustaining 33,500 Full Time Equivalents (FTE) in fiscal year 2017, with additional investments for workforce training and development. Additionally, two attack submarine (SSN) availabilities were moved to the private sector in fiscal year 2017 to help level load shipyard workload.

The Fleet Readiness Centers (FRCs) and Navy's aviation depots have been challenged to recover full productivity after hiring freezes, furloughs, and overtime restrictions in fiscal year 2013. Through a concerted hiring effort with the support of congressional budgetary increases, the recovery in maintenance capability is in progress. However, the FRCs face a significant backlog of work, particularly for the service life extension of our legacy F/A–18 Hornets. FRCs hiring progress returned to pre-sequestration manning levels in fiscal year 2015 and they continue to adjust hiring in order to ensure the workforce can meet the workload demand. In an effort to improve throughput, FRCs are increasing engineering support to address the

work required to reach 10,000 hours of service life, reallocating some of the existing workforce, and contracting additional private sector support. Navy has increased its number of field teams to improve flight line maintenance and ensure there is a clear understanding of the material condition of airframes heading to the depots. FRCs have also developed repair kits that ensure long-lead parts are readily available as repair parts are identified.

The Aviation Depot Maintenance program is funded to 76 percent in baseline and 85 percent with OCO for new work to be inducted in fiscal year 2017. This funding level supports repairs for 583 airframes and 1,684 engines/engine modules.

Navy Expeditionary Combat Forces

Navy expeditionary combat forces support ongoing combat operations and enduring GCC requirements by deploying maritime security, construction, explosive ordnance disposal, logistics, and intelligence units to execute missions across the full spectrum of naval, joint and combined operations. In fiscal year 2017, baseline funding remains significantly improved over prior years, providing 79 percent of the enduring requirement, with OCO supporting an additional 17 percent of the requirement.

Shore Infrastructure

Navy's 70 installations worldwide provide the platform to train and prepare our sailors, deploy our ships and aircraft, and support our military families. Nevertheless, fiscal constraints over the past several years have caused Navy to take deliberate risk in shore infrastructure in order to sustain Fleet readiness today.

Navy's Military Construction program, which is resourced at the lowest level since 1999, is prioritized to support combatant commander requirements, enable new platforms/missions, upgrade utility infrastructure, and recapitalize our Naval Shipyards. Navy is also taking some risk in the sustainment, restoration, and modernization of our existing buildings, piers, runways, hangars, utilities systems, and support facilities. Our fiscal year 2017 facilities sustainment account is resourced at 70 percent of the OSD facilities sustainment model, which falls short of DOD's goal of 90 percent for the sixth year in a row. Navy's fiscal year 2017 request for restoration and modernization funding is roughly half of fiscal year 2016 levels. This is only enough to address the most critical deficiencies for the naval shipyards, nuclear enterprise, piers and runways, and to renovate a small portion of inadequate barracks for our junior sailors. We are mitigating the risk in our infrastructure sustainment by prioritizing life/safety deficiencies and repairs for our mission-critical buildings and structures. By deferring less-critical repairs, we are increasing risk of greater requirements in the outyears and acknowledge that our overall facilities maintenance backlog will increase.

Navy continues to postpone much-needed repairs and upgrades for the vast majority of our infrastructure, including utilities systems, waterfront structures, airfields, laboratories, administrative buildings academic institutions, warehouses, ordnance storage, roads, and other vital shore infrastructure. Long term underinvestment in these facilities will take an eventual toll on our ability to support deploying forces.

Despite these challenges, the Navy is committed to improving the condition of our Naval Shipyards, which are critical to maintaining the warfighting readiness of our force. The Department of the Navy will again exceed the mandated capital investment of 6 percent across our shipyards and depots described in 10 USC 2476 with a 7.1 percent total investment in fiscal year 2017. We focus our shipyard investments to address the most critical safety and productivity deficiencies in Controlled Industrial Areas, which primarily include production shops, piers, wharfs, and dry docks.

CONCLUSION

The fiscal year 2017 budget submission has been carefully structured to ensure the Navy continues readiness recovery through the implementation of OFRP. Continued shortfalls in our facilities sustainment will eventually have effects in our at sea readiness model, and failing to plan for these necessary investments will continue to slow our future recovery. We are still paying down the readiness debt we accrued over the last decade, but more slowly than we would prefer and at continued risk to our shore infrastructure.

Powered by the exceptional sailors and civilians I am proud to represent today, your Navy is the world's finest and we are committed to retaining our superiority. This budget represents a margin of advantage over our adversaries. That margin could be lost if we do not achieve stable budgets. We will only maintain our status as the world's greatest Navy with constant vigilance, dedication to restoring our readiness, and sustaining forces around the globe. I thank you for your support.

Senator AYOTTE. Thank you, Admiral Howard.

I would now like to call on General Paxton, the Assistant Commandant of the United States Marine Corps.

STATEMENT OF GENERAL JOHN M. PAXTON, JR., USMC, ASSISTANT COMMANDANT, UNITED STATES MARINE CORPS

General PAXTON. Thank you, Chairman Ayotte, Ranking Member Kaine, distinguished members of the Readiness Subcommittee. I appreciate the opportunity to appear before you again today and to report on the readiness of your United States Marine Corps.

The Marine Corps is committed to remaining our Nation's ready force, a force that's truly capable of responding to any crisis anywhere around the world at a moment's notice. It has been so for 240 years, since Captain Nichols led his marines ashore in Nassau in March of 1776. Last year, the Congress reiterated the expectations of the 82nd Congress that the Marine Corps continue to serve as our country's expeditionary force in readiness, and to be most ready when the Nation is least ready, as you mentioned just a moment ago, Senator Kaine. I thank you for that reaffirmation, and assure you that today the Marine Corps is meeting, and will continue to meet tomorrow, your rightly high expectations.

Marines continue to be in high demand from all our combatant commanders around the world. They are forward-deployed and engaged on land and on sea for crisis response in Africa, Europe, the Middle East, and the Pacific. Last year, marines conducted airstrikes in Iraq and Syria, they enabled Georgian forces operating in Afghanistan, and they conducted lifesaving and disaster-relief operations in Nepal, among many other issue—many other missions, all while remaining ready to respond at a moment's notice.

Maintaining that "fight tonight" warfighting relevance across all five pillars of readiness requires careful balancing. We must constantly balance between operational readiness and institutional readiness, between capability and capacity, as the VCNO [Vice Chief of Naval Operations] just said, between current and future operations, between steady-state and between surge and between low-end and high-end operations as well as the training that goes with them, all of this as we face the increasing and varied demands from the combatant commanders.

In our challenging fiscal environment, we're struggling to maintain all of those balances. As the Commandant said in his posture statement, the Marine Corps is no longer in a healthy position to generate current readiness and simultaneously reset all of our equipment while sustaining our facilities and modernizing to ensure future readiness.

We have continued to provide the geographic combatant commanders with operationally ready forces to execute all of their assigned missions. In some cases, these units are fully trained only to those assigned missions, not the full spectrum of possible operations.

In addition to this operational—in addition to this, operational readiness is generated at the cost of our wider institutional readiness. This year, I must again report that approximately half of our nondeployed units are suffering from some degree of personnel, equipment, or training shortfalls. We continue to prioritize mod-

ernization for the most important areas, particularly the replacement of aging aircraft and aging amphibious assault vehicles, but we are deferring other needs. Our installations continue to be the billpayers for today's readiness, putting the hard-earned gains from the past decade and the much needed and the congressionally supported military construction further at risk.

While our deployed forces continue to provide the capabilities demanded by the combatant commanders, our capacity to do so over time and in multiple locations remains strained. Our deployment-to-dwell-time ratio continues to exceed the rate that we consider to be sustainable in the long term. The strains on our personnel and equipment are showing in many areas, particularly in aviation, in communications and intelligence. I'm prepared to talk about those, thank you.

We have already been forced to reduce the capacity available to the COCOMs by reducing the number of aircraft assigned to several of our aviation squadrons, and we expect to continue those reductions throughout 2017.

While we are able to maintain steady-state operations today, to include the ever-expanding Phase Zero operations and to better shape theater capacity for the combatant commanders and be focused on theater security cooperation, building partnership capacity, and sustaining mil-to-mil [military-to-military] engagements, our ability to surge for a crisis or for a warfight is increasingly challenged.

Though your Marine Corps remains able to meet the requirements of the defense strategy and to conduct high-end operations in a major contingency response, we may not be able to do so with a level of training and for all of our units and along the timelines that would minimize the costs in damaged equipment and in casualties.

These challenges in balancing provide context for the message today. Your Marine Corps remains ready to answer the Nation's call, but with no margin for error on multiple missions in which failure is not an option. To win in today's world, we must move quickly, move decisively, and move with overwhelming force.

I thank each of you for your faithfulness to our Nation and for your continued bipartisan support of the Department and all of the services.

I request that my written testimony be accepted for the record.

I thank you for the opportunity to appear before you today, and I look forward to your questions.

[The prepared statement of General Paxton follows:]

PREPARED STATEMENT BY GENERAL JOHN M. PAXTON, JR.

On December 15, 2012 General Paxton assumed the duties of the Assistant Commandant of the Marine Corps. Prior to his current assignment he served as commander, United States Marine Corps Forces Command, the commander, United States Marine Corps Forces, Europe and the Commanding General, Fleet Marine Force, Atlantic. He has served as the Commanding General, II Marine Expeditionary Force, and commander, United States Marine Forces Africa; the Director for Operations, J–3, The Joint Staff; and as the Chief of Staff for Multi-National Force Iraq in Baghdad. Additional General Officer assignments include Commanding General, 1st Marine Division, Commanding General, Marine Corps Recruit Depot/Western Recruiting Region, and Assistant Deputy Commandant of the Marine Corps, Programs and Resources (Director Programs).

General Paxton graduated from Cornell University in Ithaca, New York with Bachelor of Science and Master of Civil Engineering degrees. He was commissioned into the Marine Corps in 1974 through Officer Candidate School. A career marine infantryman, the general has commanded marines at every level from platoon through division and has served and commanded in all three Active Marine Divisions (1st Bn, 3d Mar; 2nd Bn, 4th Mar; 3rd Bn, 5th; 1st Bn, 8th Mar; 1st Mar; 1st Mar Div). General Paxton has also served as an operations, plans and training (G3–S3) officer within Fleet Marine Force units at the battalion, regiment, division and Marine Expeditionary Force levels.

In addition to service in Iraq, General Paxton has operational tours supporting stability efforts in the Bosnian conflict with Landing Force Sixth Fleet (LF6F) and in Mogadishu, Somalia as United Nations Quick Reaction Force (QRF), both while commanding Battalion Landing Team 1/8. Other staff and joint assignments include the Military Assistant to the Under Secretary of the Navy, Amphibious Operations Officer and Executive Officer Crisis Action Team (CAT) at UNC/CFC/USFK in Korea; and in Strategic Plans Branch, Deputy Commandant Plans, Policies and Operations, Headquarters U.S. Marine Corps. Supporting establishment commands include Company B, Marine Barracks 8th & I as a Captain and Marine Corps Recruiting Station New York, New York as a Major.

In addition to The Basic School, General Paxton's professional education includes United States Marine Corps Amphibious Warfare School (non resident), United States Army Infantry Officer Advanced Course, and the United States Marine Corps Command and Staff College. He was a Federal Executive Fellow in Foreign Policy Studies at the Brookings Institution as a Lieutenant Colonel, as well as a Military Fellow at the Council on Foreign Relations as a Colonel. He has also been a Marine Corps Fellow at Massachusetts Institute of Technology's Seminar XXI.

INTRODUCTION

Chairman Ayotte, Ranking Member Kaine, and distinguished members of the Senate Armed Services Subcommittee on Readiness: I appreciate the opportunity to testify on the current state of readiness in your Marine Corps and on our fiscal year 2017 budget request. We greatly appreciate the continued support of Congress and of this subcommittee in ensuring our ability to remain the nation's ready force.

The Marine Corps has been our nation's crisis response force since our first landing in the Bahamas in March 1776. Two hundred and forty years ago this month the marines led by our First Commandant, Captain Samuel Nichols, seized weapons and gunpowder for George Washington's Continental Army. Since that day the Marine Corps has been dedicated to being our country's expeditionary force in readiness, chartered by the 82nd Congress to be the most ready force when the nation is least ready. I thank this Committee and the 114th Congress for their appreciation of that vital role, which you reaffirmed in the most recent National Defense Authorization Act (NDAA).

YOUR MARINE CORPS TODAY

2015 was a demanding year, much like any other for your Marine Corps. Our expeditionary forces continue to be in demand and heavily employed in the face of an increasingly challenging global environment. Your marines executed approximately 100 operations, 20 of them amphibious, 140 security cooperation activities with our partners and allies, and 160 major exercises. In partnership with the State Department, we employed marines at 174 embassies and consulates in 146 countries, with many posts permanently increased in size to contend with increased threats. Our Marine Security Augmentation Units (MSAUs) deployed 33 times from the United States for short-term reinforcement of posts under particular threat. We remain grateful for your support of our 61 year old mission sets in support of the Department of State as demonstrated by your 2013 NDAA.

Our 22,500 marines west of the International Date Line continued to play an important role in maintaining stability in East Asia, working closely with America's treaty allies from Japan and the Republic of Korea in the north to Darwin, Australia in the south and numerous other allies, partners, and locations in between. III Marine Expeditionary Force (MEF) once again demonstrated why they are the force of choice for crisis response in Pacific Command. marines from III MEF based in Okinawa and mainland Japan moved directly from a training exercise in the Philippines into a disaster response mission in Nepal. Once there they evacuated 69 casualties, flew 376 sorties totaling 1300 hours in high mountains, and provided 1070 tons of emergency relief supplies. Six marines gave their lives in support of that relief operation. The Bonhomme Richard Amphibious Ready Group (ARG) and the 31st Marine Expeditionary Unit (MEU), one of the seven MEUs that operate

at sea in support of all combatant commanders, also provided humanitarian assistance after a typhoon struck the Commonwealth of the Northern Mariana Islands. The ARG/MEUs in the Middle East supported our embassy in Yemen, enabled United States special operations forces, and conducted other training missions.

Geographic combatant commander (GCC or COCOM) operational requirements also continue to be quickly and capably met by land-based Special Purpose Marine Air-Ground Task Forces (SPMAGTFs). The unit assigned to Africa Command supported the reopening of our embassy in the Central African Republic, provided security at an operating location in Cameroon, conducted high risk site surveys for numerous diplomatic posts, and provided incident response forces from multiple locations. We added a new combined arms capability to the Black Sea Rotational Force (BSRF), supporting our nation's commitment to security and stability in Eastern Europe. In Southern Command, a tailored unit assisted with the reconstruction of a runway in Honduras and conducted security cooperation in three other countries. Finally, in Central Command (CENTCOM) our SPMAGTF complemented our MEUs and Special Operations Force efforts across the region by reinforcing our embassy in Baghdad. They also reinforced and in February and March assisted with the evacuation of our diplomatic facilities in Yemen. Additionally they conducted training in Jordan, and contributed security forces, quick reaction forces, train, advise, and assist teams, tactical recovery of aircraft and personnel (TRAP) support, and other capabilities to Operation Inherent Resolve (OIR).

Seven hundred and fifty marines established and are still operating training sites at Al Asad and Al Taqaddam Air Bases in Iraq. From there they have been training and enabling the progress of Iraqi forces as they combat ISIS, including their recent support to a successful Iraqi Security Forces (ISF) counterattack at Ramadi. Marine aviation, working from the land base and the sea base, flew over 1,275 sorties in the CENTCOM theater, conducting 325 kinetic strikes and providing personnel recovery assets for that air campaign. In Afghanistan, more than 100 marines continue to operate with the ISAF staff and as enablers for forces from the Republic of Georgia. While our large-scale commitments in Iraq and Afghanistan have diminished, today many marines still remain in harm's way, heavily engaged in the Middle East and around the globe to do our nation's bidding.

YOUR MARINE CORPS FROM TODAY INTO THE FUTURE

As we continue to organize for, train for, and execute our missions, we are concentrating our near term efforts in five interrelated areas that are vital to the Marine Corps' future success. Our Commandant, General Robert Neller, has directed that we focus on five key areas: People, Readiness, Training, Naval Integration, and Modernization. The three major themes that run throughout his guidance are maintaining and improving the high quality people who make up today's Marine Corps; decentralizing training and preparation for war while adhering to Maneuver Warfare principles in the conduct of training and operations; and modernizing the force, especially through leveraging new and evolving technologies.

Readiness, our focus here today, cannot be considered in isolation from the other areas, which in turn help comprise the five historic pillars that are the foundation of our institutional readiness and responsiveness. First, unit readiness is our most immediate concern. We must guarantee our ability to execute the mission when called. Second, we must have the ability to deploy, aggregate, and command and control our expeditionary capabilities to meet the combatant commanders' requirements. The third, strongest, and most vital pillar of our readiness remains our marines, the product of a time tested transformation process at our Recruit Training Depots. Fourth, those marines and units rely on our infrastructure sustainment: our bases, stations, and installations are our launch and recovery platforms and must remain up to that key task. Fifth and finally, we must continuously push forward with equipment modernization, balancing our current and future warfighting needs.

These five pillars represent the operational and foundational components of readiness across the Marine Corps. We know we are ready when our leaders confirm that their units are well trained, well led at all levels, properly equipped, and can respond quickly to the unforeseen. Our nation's leaders may call on us for that response today, next week or next year, but we must be ready in any case. In the current fiscal environment we have been struggling to maintain that balance between current readiness and projected future readiness. Our 5.6 percent reduction in Operations and Maintenance funding from fiscal year 2015 to fiscal year 2016 makes that near term struggle even more difficult.

While we remain grateful for the balanced budget agreement (BBA) and overseas contingency operations (OCO) dollars, we also continue to need a stable and predictable fiscal planning horizon. As I stated last year the possibility of Budget Control

Act (BCA) implementation continues to loom over us all. It threatens our planning and readiness. While all of our deployed forces have met or exceeded our readiness standards for their assigned missions, as resources have already flat-lined or diminished, it has been at the expense of our non-deployed forces, and investments in other areas such as sustainment and modernization. As the Commandant wrote in his posture statement, today the Marine Corps is no longer in a position to generate current readiness and reset our equipment while sustaining our facilities and modernizing to ensure our future readiness. In order to stay ready and to "fight tonight" under current budgetary outlays and constraints, we are continuing to mortgage our future readiness.

UNIT READINESS

We will ensure that an aviation squadron embarks on amphibious warships for a MEU deployment or on a Unit Deployment Program (UDP) rotation to an expeditionary base in the Pacific with its full complement of trained personnel and ready aircraft. They must also have a complete block of vital spare parts, which have taken on even greater importance as we work to reset aircraft fleets flown hard over fourteen years of conflict. In doing so that squadron may leave its sister squadrons deficient in ready aircraft and parts as they attempt to train for their own upcoming deployments. Those deficiencies then cut into the number of Ready Basic Aircraft (RBA) available to train. This in turn reduces flying hours for the squadron's pilots, making it more difficult for them to maintain or achieve their own necessary qualifications (eg. overall hours, flight leadership qualifications, night flying proficiency, shipboard landing qualifications). The same dynamic is true in other forms for some of our other units—the communications and engineering battalions that send their best equipment and operators out to support our MEUs and SPMAGTFs may lack the assets to support elements remaining at home station, inhibiting their ability to train for future deployments and be ready to execute OPLANs or support crisis response.

That same flying squadron struggling to prepare for its next deployment, that communications or engineering battalion with key personnel and equipment already forward, are all a part of our "bench"—our ready force for any crisis or contingency that exceeds our forward deployed capacity. Some enabling units, primarily those located in our Marine Expeditionary Force (MEF) headquarters formations that provide functions such as intelligence and communications, are deploying elements in support of sustained missions that were not anticipated by past planning assumptions. The absence of those elements, and the need to reset those elements following their deployments, degrades the readiness of the parent unit at home station. If the MEF were required to respond to a major crisis, they would require augmentation of personnel and equipment to alleviate those shortfalls. In order to retain our home station crisis response capability as well as our surge capabilities for operational plans (OPLANs), our rotational units must be able to quickly regain and sustain their own readiness following brief post-deployment degradations as old personnel depart, new personnel report, and equipment is reset. Under our current resource levels we are accepting prolonged readiness risks and focusing the training of some units to their more limited rotational mission sets vice full spectrum operations.

When our resources fail to keep pace with operational requirements it further exacerbates these readiness problems. In the event of a crisis, these degraded units could either be called upon to deploy immediately at increased risk to the force and the mission, or require additional time to prepare thus incurring increased risk to mission by surrendering the initiative to our adversaries. By degrading the readiness of these bench forces to support those forward deployed, we are forced to accept increased risk in our ability to respond to further contingencies, our ability to assure we are the most ready when the nation is least ready. This does not mean we will not be able to respond to the call of the nation's leadership. It does mean that executing our defense strategy or responding to an emergent crisis may require more time, more risk, and incur greater costs and casualties.

DEMAND AND CAPACITY TO RESPOND

After a deliberate Marine Corps Quadrennial Defense Review study in 2014, the study identified 186,800 as the optimal force size to address the forecast demands foreseen at that time. World events continue to challenge the assumptions behind that forecast, both in terms of the world situation and capability requirements such as cyber and special operations, and we are reassessing our projected future requirements. As shown by our operations in 2015, your Marine Corps continues to be in high demand from our regional COCOMs. With our stabilization at an end strength of 182,000 we will continue to satisfy many but not all of those demands. That de-

mand signal has not substantially abated due to the emergence of threats in new forms, gradually increasing the strain on our forces.

Along with adequate resourcing, our forces require time to conduct training and maintain their equipment between deployments. We use the term "deployment to dwell" (D2D) to capture the ratio of time marines and units spend deployed as opposed to resetting for their subsequent deployment. Our ideal D2D ratio is 1:3, which means a deployment of 7 months is followed by 21 months of time at home station. That home station time is required for the unit to conduct personnel turnover, equipment reset and maintenance, and complete a comprehensive individual, collective, and unit training program across all their mission essential tasks (METs) prior to deploying again. Today this timeline is challenged by the increased maintenance requirements of aging equipment, shortages in the availability of ships with which to conduct amphibious training, ensuring personnel fills are in place, and other factors to include school seats, training range availability and even weather.

Those challenges are compounded by the demands on today's force, which have many of our units and capabilities deploying with a 1:2 D2D ratio, which translates to one third less home station training time than we would prefer. In several fields, we are currently operating in excess of a 1:2 ratio for entire units or individuals with critical skills. For example, our infantry regimental headquarters elements are currently providing command and control for our SPMAGTFs in Africa and Central Command, which is limiting their ability to train to other core METs in major conventional operations. While we may be able to develop internal solutions to partially mitigate that concern, there are other challenges that belie simple solutions. Whereas a few years ago we were focused on our explosive ordnance disposal, engineering, and unmanned aerial vehicle units, today our critical ground force concerns are for our communications, intelligence, and signals intelligence battalions. All of our intelligence and communications battalions and one of our signals intelligence battalions would be unable to execute their full wartime mission requirements if called upon today. While other supporting enablers have scaled down their deployments as the overall size of our deployed units decreased, those three areas in particular are facing similar requirements as in the past in support of our forward deployed crisis response forces, along with increased demands for "reach back" support that further inhibits their abilities to train and reset while at home station. Those units require specialized equipment and highly skilled, highly trained individuals, making them difficult to quickly scale up.

Our aviation community also has elements being stressed by a tempo in excess of a 1:2 D2D ratio including all of our fixed wing and tiltrotor aircraft, while our attack helicopters are being recapitalized and heavy lift helicopters reset as they cope with shortfalls in ready basic aircraft (RBA). Approximately 80 percent of our aviation units lack the minimum number of RBA for training, and we are also short ready aircraft for potential wartime requirements. We are working hard with the Office of the Chief of Naval Operations (OPNAV), the Department of the Navy, and the Office of the Secretary of Defense to find solutions to the RBA issue. Our tactical fighter and attack squadrons (TACAIR), F/A–18 A–D Hornets and AV–8B Harriers, are suffering from shortages in aircraft availability due to increased wear on aging aircraft and modernization delays. The average age of our TACAIR fleet is over 22 years, over two times the average age of the corresponding Navy TACAIR fleet. The impact of reduced funding levels on our depot throughput and the 2013 furloughs of highly skilled artisans resonates today and will continue to resonate into the future. We have increased depot throughput by 44 percent in fiscal year 2015 compared to 2014, returning to pre-sequestration levels. We anticipate continuing to increase depot productivity, but will not fully recover our F/A–18 A–D model backlog before 2019. We have temporarily reduced the aircraft requirement for our F–18 squadrons from 12 to 10 to allow home station squadrons greater training opportunities. For the same reasons, we have temporarily reduced our CH–53E squadrons from 16 to 12 aircraft and Harrier squadrons from 16 to 14. We are essentially increasing risk in one area (forward today in support of COCOMs) to mitigate risk in another (allow home station training for future readiness).

Our tiltrotor MV–22 Ospreys, deployed in conjunction with KC–130J aerial refueling aircraft, have provided previously unthinkable reach and flexibility to our combatant commanders. Deployment demands have also brought both communities to D2D ratios in excess of 1:2, which is unsustainable in the long term. This is compounded as we continue to field both aircraft. In our Global Force Management allocation proposal for fiscal year 2017, we will reduce the number of those aircraft assigned to two SPMAGTFs in order to move these communities closer to a sustainable path. Our combatant commanders can mitigate this reduction to some degree with judicious use of similar assets from our MEUs when available, but there will be a loss in capacity forward. As we continue to contend with constant or increasing

demand, every reduction in resources will force further difficult decisions by COCOMs and sourcing MEF alike.

PERSONNEL

The success of our Marine Corps, the center of our readiness, and our ability to respond to the requests of the combatant commanders and demands of our nation's leaders rests on the high quality, character, and capabilities of our individual marines. Those marines are the product of a time-tested yet continuously assessed process of recruiting, transformation at our Recruit Depots, and subsequent military occupational specialty training that provides our units with the trained marines they need to prepare for their collective missions. Since the establishment of the All-Volunteer Force over 40 years ago through the millennial generation of today, we have successfully recruited and retained the high caliber American men and women we need to operate effectively on today's battlefields. The steadily increasing quality of our recruits is testimony to the solid foundation of our recruiting system. The continual success of our tactical units on the battlefield over the past 14 years validates our transformation and training processes.

Despite our continued successes, we cannot take future success in these areas for granted and must continue to seek ways to maintain and improve the high quality people who make up today's Marine Corps. Some of our most stressed career fields with the longest training timelines, including aviators, intelligence, communications, and cyber personnel are also potentially in high demand in the civilian sector. We most closely track our ability to retain our highly qualified marines in these areas. Our drawdown from the congressionally approved temporary increase in end strength to 202,000 in support of Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) to our current force of 184,000 resulted in increased competition for retention, but that drawdown will reach its conclusion at 182,000 marines this year. We are now re-emphasizing and re-energizing our leadership's attention on retention to ensure that we continue to retain the requisite numbers of the very best marines capable of fulfilling our leadership and operational needs.

We also continue to be challenged to ensure we have the correct small unit leaders with the right grade, experience, technical skills, and leadership qualifications associated with their billets. As I stated last year, our inventory and assignment policies of Non-Commissioned Officers (NCOs) and Staff Non-Commissioned Officers (SNCOs) has not been meeting our force structure requirements. Our efforts to correctly draw down end-strength have included right-sizing our NCO ranks to provide our marines the small unit leadership they deserve and which our Corps needs. Concurrent with that right-sizing, we have implemented a Squad Leader Development Program (SLDP) in the infantry, our largest occupational field, to continue to improve the tactical proficiency, the technical skills, and the leadership qualifications of those NCOs. We are studying ways to broaden that program into other career fields, including a deliberate effort to identify and map all of our critical enlisted leader billets. We have also identified approximately 500 non-structured billets for elimination, allowing us to return some experienced Marines to assignments where their leadership will have a greater impact. We will execute these programs in tandem with our continuing efforts to improve the personnel stability and cohesion in our non-deployed units, which our current operating tempo renders difficult. Our goal continues to be ensuring that all units have the right personnel, leadership, and cohesion in place at the right time to conduct the collective and unit training they need to succeed in the face of any mission and to overcome any challenge.

We are also monitoring the implementation of two significant personnel reforms for still undetermined impacts and potential challenges to our personnel readiness. We are already moving ahead with the Secretary of Defense's order of 3 Dec 2015 to implement full integration of all qualified Marines, regardless of gender, into all military occupational specialties (MOSs) and units. Over the past three years we have dedicated significant resources to preparing for the implementation of this order, including our Ground Combat Element Integrated Task Force (GCE–ITF) research, training female volunteers at the entry level military occupational specialty (MOS) producing schools for the now open fields, and opening other previously restricted MOSs and units. These lines of effort (LOEs) have provided us with the data we needed to codify operationally relevant, occupationally specific standards that were previously informal, unclear, or outdated. This will help improve the overall readiness of all of our forces going forward. We have already awarded the appropriate Additional MOSs (AMOS) to all of the exceptional volunteers from our research efforts, and encouraged them to consider applying to move into those combat arms fields as their primary MOS (PMOS). We currently have female officers training in the Field Artillery Officer Basic Course for service in that community, and

our Recruiting Command is contacting all of the women in our Delayed Entry Program pool to inform them of their expanded opportunities. As we move forward with our Marine Corps Integration Implementation Plan (MCIIP), we will closely monitor the process and progress to determine the impact on first, our combat effectiveness; second, on the health and welfare of our individual Marines; and third, on our ability to manage and best utilize the talents of all the Marines in our force. These are the three lenses through which we have assessed all of our efforts and recommendations over the past 2–3 years. I continue to have concerns in all three areas, but am confident that our assessment and subsequent adjustments during implementation will help us find the best way forward for our Marines, the Marine Corps, and the nation as we execute these changes.

The Department of Defense is also in the midst of implementing, preparing for, or studying multiple other personnel reforms that may have significant but as yet undetermined impacts on our ability to afford, recruit, and retain the highest quality force. Many of these are outlined in the Force of the Future Initiative (FotFI). The Department's FotFI touches on nearly all aspects of military and civilian personnel systems. In many cases the changes driven by this initiative are welcome, often codifying what has been existing service practices. In select other cases we continue to advocate for service flexibility from any overly prescriptive policies or targets which may dilute the authorities and flexibility the Service Chiefs need to execute their title 10 responsibilities and in particular reduce our availability of ready and trained personnel. We are preparing to educate our current force on the retirement program changes enacted into law by Congress last year and assess the long term consequences of those changes both fiscally and on our personnel. Ideally those changes will be part of a wider program of reforms including compensation, healthcare, and retirement which collectively ensure we have an adequate, comprehensive, and attractive plan for our force. Finally, the Goldwater-Nichols examination being undertaken by the Congress and the Department includes a look at our joint training, education, assignment, and availability of our mid-grade and senior officers. We must make haste slowly in all these areas to ensure that our attempts to continually improve upon our current, although sometimes imperfect system do not disrupt a system that has in fact been exceptionally successful since 1986 at improving jointness, integration, and warfighting capability including over fourteen years of continuous combat.

INFRASTRUCTURE SUSTAINMENT

Our installations and infrastructure are the platforms upon which and from which our Marines and units live, train, launch, and recover. They are the platforms that generate our readiness. The Marine Corps' installations provide the capability and capacity we need to support the force. This includes our two depot maintenance facilities, which provide responsive and scalable depot maintenance support. Both depot sites, which were right-sized in 2014, have been vital to our ongoing equipment reset activities based on our past force and equipment reductions in Iraq and Afghanistan. To date the Marine Corps has reset 78 percent of its ground equipment with 50 percent returned to our operating forces. We anticipate the depot sites will continue to play vital roles for the Marine Corps even after our expected completion of our current reset efforts in 2019. As we are resetting, we are also conducting a Corps-wide equipment review to right-size and reposition our equipment sets for today's environment as well as future challenges. This includes careful examination of items, such as critical communications equipment, that are having the most significant impacts on our readiness. We have already identified several critical items and components and have requests to address them in our fiscal year 2017 budget.

The Marine Corps has infrastructure and facilities worldwide that train, house, and provide quality of life for our Marines and their families. These facilities must be appropriately maintained to prevent degradation of their ability to support our force and its readiness. We are executing our Facility Sustainment, Restoration, and Modernization (FSRM) initiative, the single most important investment in facilities readiness to support training, operations, and quality of life. We are accepting risk by programming at 74 percent of the funding level based on the Office of the Secretary of Defense Facilities Sustainment Model. We are focused on meeting the essential habitability, safety, and quality of life requirements while deferring all other activities, to include the demolition of outdated facilities that are no longer needed but continue to incur safety driven maintenance costs. Our fiscal year 2017 military construction (MILCON) funding proposal decreases by $330 million from fiscal year 2016 enacted levels. This fiscal year 2017 program enables continued progress towards our long term re-alignment in the Pacific, including projects necessary to introducing vital new warfighting capabilities into the region such as the F–35B. We

will require future construction funding increases as some of these projects mature, such as on Guam, and to activate additional combat staging locations (CSLs) from which to support forward deployed forces. In addition to these future requirements, the reductions to military construction of the past two years and continuing shortfalls in sustainment funding put us at risk of reversing hard-earned gains in our infrastructure status (with thanks to Congress for their support of our MILCON for the past 5–10 years) as our new construction most likely ages prematurely for lack of maintenance. Left unchecked, this degradation of our infrastructure can be expected to have negative long-term impacts not only on quality of life, but also on our support to training, operations, logistics, and ultimately readiness.

MODERNIZATION

We are continuing to press modernization in the most essential areas to ensure the Marine Corps remains ready and relevant in the face of more capable future enemies. We must balance the cost of those efforts against our current readiness. Our first operational Joint Strike Fighter (JSF) Squadron, VMFA 121, declared its initial operating capability (IOC) in 2015, equipped with state of the art technology in our F–35Bs. After the second squadron becomes operational in 2016, VMFA 121 will relocate to Iwakuni, Japan in fiscal year 2017. From there they will operate with the U.S. Air Force and our regional allies ashore and at sea with our Navy partners. While we are still working to achieve the full operating capabilities (FOC) of these aircraft, even at their IOC status our F–35B squadrons are prepared to conduct combat missions and are much more capable than the 3rd and 4th generation aircraft they are replacing. The F–35B will have a transformational impact on Marine Corps doctrine, providing 5th generation capabilities to support sea control operations (SCO) with the Navy and enable joint forcible entry operations (JFEO) by the MAGTF even in the most contested environments. We look forward to the standup of our first F–35C squadron, which will further enhance the capabilities of our Navy-Marine Corps team and our tactical aviation integration (TAI) plan.

Our other major aviation modernization program is the CH–53K Heavy Lift Replacement, which will be critical to maintaining the battlefield mobility of our force, with nearly triple the lift ability of the aircraft it is replacing. We anticipate our first detachment achieving IOC in fiscal year 2019 and the full 200 aircraft delivery being complete by 2029. It will be complemented within our Ground Combat Tactical Vehicle Strategy (GCTVS) by the fielding of 5,500 Joint Light Tactical Vehicles (JLTV) with IOC in fiscal year 2019 and FOC by fiscal year 2022. We will bridge the sea and land with the Amphibious Combat Vehicle (ACV) 1.1, using this year to test sixteen each of two down selected models against each other to ensure we receive the best possible capability even as we look forward to developing the requirements for ACV 1.2. The development of ACV 1.2 is essential to the nationally unique ship to shore power projection capability that your Marine Corps provides. We are also continuing with numerous other fiscally smaller programs that are no less vital to our warfighting capability such as the Ground/Air Task Oriented Radar (G/ATOR) and command and control systems such as Networking on the Move (NotM). Programs such as these will help us continue to improve our battlefield awareness and the dissemination of information to small and dispersed tactical units to maximize their effectiveness. Given evolving cyber threats, we also assess an as yet unidentified requirement to properly encrypt all these command and control systems, be they radio, radar, airborne, or ground mobile.

We are balancing the cost of our modernization efforts in those essential areas against our current readiness by extending and refreshing some of our legacy systems. Even as we look to modernize by replacing the F/A–18, AV–8B, and CH–53E with the F–35B/C and CH–53K, we are also working to refresh our current aircraft fleets to recover and maintain readiness and capability during the transitions. We have already completed independent readiness reviews (IRR) of our AV–8B Harrier and CH–53E Sea Stallion fleets, are in the midst a review of our MV–22 Osprey fleet, and will next examine our AH–1Z Cobra/UH–1Y Huey squadrons and aircraft to ensure we restore and maximize the potential readiness of our entire aviation community. With our ground equipment, we are in the midst of a survivability upgrade (SU) to our existing Assault Amphibian Vehicles (AAVs) to maintain essential ship to shore power projection capability and capacity while we work to get the ACV right and fielded. We are accepting much greater risk with our Light Armored Vehicles (LAVs) now with an average age of 33 years, M1A1 tanks with an average age of 26 years, and other critical warfighting assets at this time. While we judge these risks to be at acceptable levels today, they are yet more examples of the trade-offs we are required to make due to fiscal reductions that accompany operational demand increases. As we have stated before, there remains the potential for unaccept-

able increases in risk associated with any additional resource reductions or erroneous assumptions, operational or fiscal.

NAVAL AND JOINT FORCE INTEGRATION

Amphibious warships and their embarked MAGTFs are the center pieces of the Navy and Marine Corps' time tested and proven forward presence, forcible-entry, and sea-basing capabilities in support of assurance, deterrence, and contingency operations. Although our Special Purpose Marine Air-Ground Task Forces (SPMAGTFs) have been making essential contributions to our COCOMs, their operations have been shore based due to the inadequate size of our amphibious fleet. This represents a compromise of our preferred amphibious basing, with its sovereign launch and recovery status, and of our rich heritage and strong partnership with the United States Navy. Although the SPMAGTFs have been sought after and very successful they are not always the optimal method of employment of our forces. They may require greater resource capacity to produce the same warfighting and power projection capabilities as we achieve operating from the sea.

The availability of amphibious shipping remains paramount to readiness and responsiveness. The nation's amphibious warship requirement remains at a minimum of 38 ships to support a two Marine Expeditionary Brigade (MEB) assault echelon (AE). As the Commandant and Chief of Naval Operations have testified in past years, the number of vessels required to meet the steady-state demands of our combatant commanders exceeds 50 vessels. The current inventory of 30 vessels falls short of the requirement by both measures, and that shortfall is aggravated by recurrent maintenance challenges in the aging amphibious fleet. The current and enduring gap of amphibious warships to requirements inhibits ours and the Navy's ability to train to our full capabilities, inhibits our shared ability to respond to an emergent crisis, and increases the strain on our current readiness.

The Marine Corps whole-heartedly supports the Navy's current build back to 34 L-class ships by fiscal year 2022, including the 12th LPD–17 class vessel this Congress has provided, the LHA–8, and the 11 ship LX(R) program based on the LPD–17 hull form. The Marine Corps would obviously prefer to reach at least the minimum requirement of 38 platforms as soon as feasible, but we understand the Navy's difficult task in balancing amphibious readiness with many other national requirements. We agree that 34 ships, with the appropriate level of availability and surge ability, is a compromise that continues to assume an acceptable level of risk for a brief period. This risk may be seriously exacerbated if the Department of the Navy (DON) continues to be obligated to fund the *Ohio*-class submarine replacement from within their already pressurized total obligation authority (TOA). We also support our continued DON effort to develop and experiment with alternative platforms including the newly designated "E Class" ships. The value of the Mobile Landing Platform, now designated the Expeditionary Mobile Base (ESB), as an afloat forward staging base (AFSB) is already clear. Our combatant commanders are demanding their employment as fast as they are being fielded. The creative use of these and other existing platforms, particularly on exercises and in experiments, will enhance our capacity for operations in lower threat environments. They may provide enabling support for the operation of our amphibious warships and landing force in contested scenarios. The modernization of our ship to shore connectors (SSCs) is equally vital to this effort, including the programmed replacement of the Landing Craft Air Cushioned (LCAC) and Landing Craft Utility (LCU) platforms. Both the LCAC and LCU successor programs should provide affordable replacements for those aging craft with incremental but much needed increases in capability. These investments combined with our modernization efforts such as the fielding of the F–35B will enable a greater contribution of the Marine Corps to our overall maritime operations, particularly for forcible entry.

While retaining dominance in our traditional domains, the Navy and Marine Corps must also continue to move forward with integration into the total Joint Force as we enhance our capabilities across the entire and evolving five domain (5D) battlespace. We will begin by reinforcing our role as a naval expeditionary force that assures access for the Joint Force. While balancing our own resources, we must also ensure we remain ready to leverage and enable the capabilities of the Army, Navy, Air Force, and Special Operations Forces. This includes continuing to develop information warfare (IW) and command and control (C2) capabilities which are required to operate effectively against increasingly sophisticated adversaries. Our Marine Cyber Mission Teams (CMTs) and Cyber Protection Teams (CPTs) are already engaged in real world operations supporting COCOM missions and enabling the functionality of our networks in the face of persistent threats. Their expertise has been sought more than once to conduct defensive cyber operations in support of the

Office of the Secretary of Defense and Joint Staff. By the end of fiscal year 2018, Marine Forces Cyber Command will have 13 Cyber Mission Force Teams with approximately 600 marines, civilians, and contractors. As we continue to develop and assess our requirements in this area, we are challenged to balance them within our existing force structure and resourcing. We must ensure our networks are configured to provide world-wide access in garrison or forward, and are deployable, digitally interoperable, and able to support rapid advancements in technology and combat capabilities. As our adversaries and potential adversaries continue to make advances in the cyber domain, we must ensure Marine Corps Cyber Forces are ready to face and respond to those threats with cutting edge capabilities as part of U.S. Cyber Command. This may require new policies for programmatic flexibility in manning, training, and equipping as we contend with this rapidly changing technological environment.

CONCEPT DEVELOPMENT AND EXPERIMENTATION

As we prepare to combat our foes in these new domains and focus on building our maritime based operational capability, we will continue to expand upon a robust program of experimentation embedded within our training and exercise program to push innovation and validate new ideas. While we have been focused and operationally committed to the conflicts of the past decade, our enemies and competitors have been advancing their own capabilities—technically, tactically, organizationally, and operationally. In some cases they have developed new capabilities which now equal or exceed our own. Global instability has also increased in the past few years and the threats to our national interests have evolved. We are confident that the future fight may not be what we have experienced in the past, but will involve rapidly changing and evolving technologies, which will force us to be more agile, flexible, and adaptive. We must continue to push forward and explore new warfighting and operating concepts as we must be prepared for the future fight on the distributed and lethal battlefields of 2025. We must also therefore balance our investment and commitment to experimentation against our current readiness. This creates yet another area of potential risk.

The force we need to succeed against the threats of 2025 will not be a mirror of today's Marine Corps. We expect those threats will require significant and yet unknown adjustments in manpower, training, and equipment. In order to develop the force to operate in new domains and across the electromagnetic spectrum, we may need to either grow or to rebalance our manpower to ensure we are gaining the capability and capacity we need in new areas while continuing to improve our existing edge. That force may also require command and control, reach back, and lift capabilities that exceed our current capacities. This summer during the Rim of the Pacific (RIMPAC) exercise, we will conduct an experiment employing the distributed operations (DO) concept, itself developed and refined through repeated experimentation, in an anti-access area denial (A2AD) environment. We will project a lethal conventional force integrating unmanned technologies from the sea base against objectives deep ashore, then sustain that force for continuous operations. That same unit will continue to experiment with its organization throughout its scheduled fiscal year 2017 deployment to the Western Pacific. The results gleaned from these and subsequent experiments will be vital as we shape the design of future force 2025 to ensure we are prepared for the next generation of threats.

CONCLUSION

On behalf of all of our marines, sailors, and their families, I thank the Congress and this subcommittee for affording us the opportunity to discuss some of the key challenges faced by our Marine Corps today and providing us the support and resources to win on the battlefield of the future as well as of today. With your continued support, we will strive to carefully and correctly balance readiness with risk in today's force and the force of tomorrow, and to articulate what we require to guarantee our warfighting capability and capacity as we improve our balance across all five pillars of readiness today and into the future. We will continue to answer the nation's call to arms, meet the needs of the combatant commanders and national leaders who depend on us, and be prepared to respond to any crisis or contingency that may arise. Your Marine Corps will continue to do as the 82nd and 114th Congress directed: "to be the most ready when the nation is least ready."

Senator AYOTTE. Thank you, General Paxton.

I would now like to call on General Goldfein, the United States Air Force Vice Chief of Staff.

Thank you.

STATEMENT OF GENERAL DAVID L. GOLDFEIN, USAF, VICE CHIEF OF STAFF, UNITED STATES AIR FORCE

General GOLDFEIN. Thank you, Chairman Ayotte, Ranking Member Kaine, and distinguished members of the subcommittee, on behalf of our Air Force Secretary and Chief of Staff. It's an honor to be with you today, and a privilege to be here with my fellow Vice Chiefs.

I request my written statement be placed in the record.

Just as you have heard from my colleagues, your airmen work side by side with their fellow soldiers, sailors, marines, and coastguardsmen to defend U.S. interests here in the Homeland and across the globe. As an example, it's still winter in Minot, North Dakota, Malmstrom, Montana, and F.E. Warren Base in Wyoming, and early this morning, a number of airmen drove the equivalent of Philadelphia to D.C., and now stand watch over the most destructive force on the planet as they provide strategic nuclear deterrence for our Nation and our allies. At the same time, airmen are providing top cover and precision fires for our joint and coalition teammates in Iraq, Syria, Afghanistan, Korea, Africa, and Europe, all while our Air National Guardsmen provide 24/7 defense of the Homeland in support of U.S. Northern Command. From moving critical supplies and people to every corner of the map to managing 12 constellations in space to defending our critical cyber networks to executing lifesaving personnel recovery and Special Operations missions, I could not be prouder to represent the more than 660,000 Active Duty, Guard, Reserve, and civilian airmen who put the power in airpower.

However, 25 years of continuous combat coupled with budget instability and lower-than-planned top-lines have made the Air Force one of the smallest, oldest, and least ready in our history. To put our relative size, age, and readiness in perspective, in 1991 we deployed 33 of our 134 combat-coded Active, Guard, and Reserve fighter squadrons in support of Operation Desert Storm. We were 946,000 airmen strong. On average, our aircraft were 17 years old, and 80 percent of the fighter force was ready for full-spectrum conflict. Today, we have just 55 Total Force fighter squadrons, and our Total Force is 30 percent smaller, at 660,000. The average age of our aircraft is 27 years, and less than 50 percent of our combat Air Force is ready for full-spectrum operations.

Couple this significant readiness decline with a rising and more aggressive China, recent Russian actions in eastern Europe and Syria, continued Iranian malign influence, North Korean nuclear and space ambitions, and our ongoing fight to deliver a lasting defeat to ISIL, and you understand my concern with this dangerous trajectory.

The fiscal year 2017 budget reflects our best effort to balance capability, capacity, and readiness under the top-line we received. We made difficult trades between readiness today and the critical investment required to modernize for the future against potential adversaries who continue to close the technological gap. Air Forces who don't modernize eventually fail. When the Air Force fails, the joint team fails. I look forward to discussing these trades and their impacts in today's hearing.

Madam Chairman, decisive air, space, and cyberspace power is fundamental to American security, and it underpins joint force operations at every level. The 2017 President's Budget and the flexibility to execute the resources as we have recommended is an investment in the Air Force our Nation needs. America expects it, the combatant commanders require it, and, with your support, airmen will deliver it.

On behalf of our Secretary and our Chief of Staff and our airmen who give our service life, thank you for your tireless and continued support. I look forward to your questions.

[The prepared statement of General Goldfein follows:]

PREPARED STATEMENT BY GENERAL DAVID L. GOLDFEIN

INTRODUCTION

Today's national security challenges come from a combination of strong states that are challenging world order, weak states that cannot preserve order, and poorly governed spaces that provide sanctuary to extremists who seek to destabilize the globe. The world needs a strong American Joint Force, and since our establishment in 1947, the Air Force remains an agile responder in times of crisis, contingency, and conflict. In fact, the Joint Force depends upon Air Force capabilities and requires Airpower at the beginning, the middle, and the end of every Joint operation.

America's Air Force must be able to disrupt, degrade, or destroy any target in the world, quickly and precisely, with conventional or nuclear weapons, to deter and win our Nation's wars. Undoubtedly, decisive air, space, and cyberspace power—and the ability to command and control these forces—have become the oxygen the Joint Force breathes and are fundamental to American security and Joint operations.

Whether in support of global counter-terror operations or near-peer deterrence, your Air Force remains constantly committed, as we have without respite for the past 25 years.

However, 25 years of continuous combat operations and reductions to our Total Force coupled with budget instability and lower-than-planned funding levels have resulted in one of the smallest, oldest, and least ready forces across the fullspectrum of operations in our history. The Budget Control Act (BCA) further degraded our readiness, and there is simply no way to recover without time, money, and people. While the Bipartisan Budget Act of 2015 provides some space to recover readiness and continue modernization efforts, your Air Force needs permanent relief from BCA, consistent, flexible funding, modestly increased manpower, and time to recover readiness.

IMPACT OF THE BUDGET CONTROL ACT AND SEQUESTRATION

In 2013, sequestration abruptly delayed modernization and reduced both readiness and the size of the Total Force. Specifically, sequestration forced the grounding of one-third of our combat fighter squadrons for three months. It is important to understand the cumulative effect on readiness when the Air Force stops flying. We delay aircrew proficiency and progression, suspend aircraft maintenance, create months of maintenance backlog, and defer major depot inspections and overhauls on our aging fleet. Sequestration also postponed maintenance, repair, and upgrades on our ranges, which degraded high-end training for our combat forces. Furthermore, we canceled partnership-building exercises and could not support multiple Army combat unit certification missions. Half of non-combat joint airlift and air refueling requirements were unsupported. Further, sequestration halted investment in infrastructure repairs cancelling or delaying military construction and facility restoration and modernization projects across the Air Force.

Even worse, we broke faith with our airmen. We furloughed approximately 180,000 civilian airmen, froze their pay, and released all temporary and term employees. Professional military education and development of our airmen stopped, some base facilities closed, and airmen and family services halted. Approximately 20,000 experienced airmen separated from the Air Force under force management programs and our accession targets were decreased to meet reduced end strength caps. Our airmen's trust, loyalty, and confidence, an essential aspect that underpins the effectiveness of our force, eroded during this time. Bottom line–when an Air Force does not fly, readiness atrophies across the enterprise with impacts that cannot be reversed in the time it took to lose it.

The Air Force entered fiscal year 2014 in a government shutdown with fiscal planning focused on a second year of sequestration. We remain grateful for the modest, temporary relief from sequestration in 2014 and 2015. This relief enabled the Air Force to fly to capacity, resume critical aircraft and facility maintenance, invest in our Nuclear Force Improvement Program, fund our training ranges, purchase munitions, and invest in the KC–46, F–35, and LRS–B. Despite this relief, we still made some very tough choices. We attempted to reduce force structure, carried risk in base infrastructure support and military construction, and sacrificed near-term readiness for future modernization.

After submitting our fiscal year 2015 budget, our Secretary of Defense outlined five threats that factor into our National security calculus: China, Russia, Iran, North Korea, and the ongoing fight against global terrorism. As a result, the demand for Air Force capability and capacity increased. We made necessary adjustments to balance near-term readiness with future modernization in our fiscal year 2016 budget, but our readiness remains at a near all-time low due to continuous combat operations, reduced manpower, an aging fleet, and inconsistent funding. For the last two years, instead of rebuilding readiness for future, high-end conflicts, our airmen have responded to events across the globe, leading and in support of the Joint Force.

Although we remain the world's greatest Air Force, a return to sequestration would exacerbate the problem and delay our goal to return to full-spectrum readiness.

STATE OF THE AIR FORCE

Today, the demand for Air Force capabilities continues to grow as airmen provide America with Global Vigilance, Global Reach, and Global Power. Airmen are engaged defending U.S. interests around the globe with approximately 200,000 airmen directly supporting combatant commander requirements from home station. Your Air Force has deployed 20,000 airmen worldwide, and another 80,000 are permanently stationed at overseas bases. In this past year, more than 35,000 airmen protected our national interests and those of our Allies by ensuring a safe, secure, and reliable nuclear deterrent. We flew nearly 1.7 million flying hours, equal to 194 continuous years of flying. We delivered a staggering 1.2 billion pounds of fuel, 345,000 tons of cargo, and evacuated over 4,000 patients. We also conducted over 8,000 cyberspace operations and prevented network intrusions. American airmen performed nearly 20,000 Intelligence, Surveillance and Reconnaissance (ISR) missions around the world and enabled 25 space missions supporting national security objectives while simultaneously tracking over 23,000 objects orbiting the earth. All this was accomplished with a force almost 33 percent smaller than in 1991.

To put our reduced size in perspective, in 1991, during Operation Desert Storm, we deployed 33 fighter squadrons into our first conflict since Vietnam. At that time, we had 134 combat-coded fighter squadrons, 946,000 Active Duty, guard, reserve, and civilian airmen, and 80 percent of the fighter force was ready for fullspectrum operations. Today, we have just 55 combat-coded fighter squadrons, approximately 660,000 Total Force Airmen, and less than 50 percent of our Air Force is ready for full-spectrum operations–a 30 percent reduction since Operation Desert Storm. While the extraordinary success of Operation Desert Storm shaped the world's perceptions of American Airpower, our near-peer adversaries responded by modernizing their forces with systems specifically designed to neutralize our strengths.

As our Secretary of the Air Force and Chief of Staff highlighted, for the first time in a generation, adversaries are challenging America's freedom of maneuver in air, space, and cyberspace in contested regions and near our Allies' borders. The Air Force continues to lead the global response against ISIL in the Middle East while still heavily engaged in Afghanistan. A resurgent Russia now supports Assad in the skies over Syria and has announced their intent to modernize their nuclear forces. In addition, we watched North Korea conduct a space launch and an illegal nuclear test, and we see worrisome military activity in the South China Sea. We also have other growing threats in both space and cyberspace. Our adversaries are closing the capability gap in space and cyberspace while also fielding advanced air defenses and fifth-generation aircraft. Our strategic capability advantage over competitors is shrinking, and our ability to project strategic deterrence is being challenged.

To meet the full requirements of our Defense Strategic Guidance and current operation plans, we require 80 percent of our combat squadrons to be full-spectrum ready. We define full-spectrum readiness as the right number of airmen, properly led, trained and equipped, to accomplish our Air Force mission in support of the Joint Force in both contested and uncontested environments.

We measure full-spectrum readiness through our five levers of readiness: critical skills availability, weapons system sustainment, training resource availability, flying hour program, and operational tempo. If airmen are not ready for all possible scenarios, especially a high-end fight against a near-peer adversary, it could take longer to get to the fight; it could take longer to win; and it could cost more lives. To maintain the advantage the Air Force provides to the Joint Force, we need sufficient, predictable funding, increased manpower in critical skills areas, and improved deployto-dwell time. To achieve balance across our five levers of readiness, the following highlights our state of readiness and where Congressional support for this budget request is needed.

STATE OF THE AIR FORCE—GLOBAL NUCLEAR POWER

As we emphasized last year, the Air Force represents two-thirds of our Nation's nuclear triad, and the nuclear enterprise remains our number one priority. With both nuclear and conventional forces, the Air Force provides a range of options for America's leaders, but the effects of age are beginning to limit Air Force nuclear capabilities. While our nuclear forces remain safe, secure, and effective, this budget provides significant investment needed to ensure nuclear readiness and unrivaled deterrence for the 21st century. Today's bombers were built in the 1960s and are approximately 55 years old. On average our facilities are now approximately 40 years old, with many facility systems operating well past their 20-year designed life span. Currently, all of our weapons storage areas are operating with waivers and deviations from our high standards. Although these storage areas are uncompromised, safe and secure, in order to address the recommendations identified in our Nuclear Enterprise Reviews for facility and weapons sustainment, we require the resource levels requested in this budget.

To ensure a reliable nuclear deterrent for the Joint Force, this budget request includes modernizing nuclear command and control, replacing some outdated and unsupportable components of Minuteman III ICBM equipment, while also making initial investments in the Ground Based-Strategic Deterrence Program. Our National Airborne Operations Centers provide critical, survivable Nuclear Command, Control, and Communications but they are 35 years old. We must recapitalize this fleet in order to maintain our Command and Control advantage in times of crisis or nuclear conflict. To support the Joint Force, we must ensure our mobile Command and Control systems are able to withstand attacks from space and cyberspace and are sufficiently resilient to function if prevention fails. Additionally, we reorganized our Nuclear Enterprise and established Air Force Global Strike Command as our Air Force lead to ensure continued, sustained, and secure Nuclear Command, Control and Communications. We managed to sustain Air Launched Cruise Missiles and Minuteman III platforms within our resources. We are developing the Long-Range Standoff weapon to provide the Joint Force with a survivable air-launched weapon capable of destroying otherwise inaccessible targets in any conflict zone. This budget request includes the resources to address those critical challenges.

STATE OF THE AIR FORCE—GLOBAL CONVENTIONAL POWER

Air Superiority is the critical prerequisite for every military operation to ensure freedom of action for the Joint Force and the Nation. Our F–22s are in high demand in the Central, Pacific, and European Commands. Our F–15Cs provide primary support for Homeland Defense and to both the European and Pacific theaters. These platforms secure the high ground and have prevented American ground forces from attack by enemy air strike since 1953. Today, our six F–22A squadrons are in high demand. Therefore, we are continuing last year's investments to modernize advanced air-to-air weaponry, requesting additional funding for sensor and tactical and seeking electronic warfare protection and modern sensor suites for our remaining F–15C fighters. To develop airmen properly trained to meet the combatant commanders' demand signals, we funded flying hours to their maximum executable level and are continuing to invest in full-spectrum combat exercises like Red Flag and Green Flag. We have properly resourced these readiness components in this year's budget and request Congressional support for these critical requirements.

We also testified last year that weapons system sustainment is a key component of readiness. Weapons system sustainment costs continue to increase due to the complexity of new systems, the challenges of maintaining old systems, operations tempo, and increasing demand for maintenance personnel. We fly all of our aircraft to their full service life and beyond. The longer we extend the service life of our legacy aircraft, the more investment, preventive maintenance and manpower they require.

This year's budget continues investment in modernizing and sustaining the three combat-coded B–1 squadrons with additional precision weapons, digital data links, and other improvements aimed to negate diminished manufacturing resources. Similar to last year, we will also invest in extending the B–1 service life to maintain this strategic capability against evolving threats. We are approaching our second service life extension on F–16s. Our F–15Cs and F–15Es, which are in high demand, are experiencing structural fatigue and require the sustained, consistent funding requested in this budget for repairs to remain effective.

Since Operation Inherent Resolve in 2014, we have expended over 28,000 munitions worth $1.2 billion, and continue to deplete our inventories in Iraq and Syria. Our Hellfire expenditures in Operations Inherent Resolve, Enduring Freedom, and Freedom's Sentinel increased nearly 500 percent since 2012, but procurement did not keep pace. Therefore, in this budget we will fund munitions to capacity to support current operations and start the process to replenish current inventories.

Similar to last year, we're seeking support in this budget submission to increase our capacity to provide airmen with increased high-end training against realistic scenarios and threats. Regrettably, investments in aging critical infrastructure such as ranges, airfields, facilities, and even basic infrastructure like power and drainage systems, have been repeatedly delayed, and the problem was significantly exacerbated by sequestration. Every year that we delay these repairs affects operations and substantially increases improvement costs. Even with the world's most advanced technology, our airmen are at a disadvantage without conducting realistic combat training exercises involving the Joint Force, our Allies, and our partners. Red Flags, and other similar training exercises, built the foundation for our success in air campaigns during the past 25 years. We need your support for this budget request to continue investment in computer-aided live, virtual, and constructive training to provide opportunities to train against the world's most capable threats, provide routine training at lower costs, and achieve the full-spectrum readiness that is vital for our national defense and to safeguard U.S. interests abroad.

STATE OF THE AIR FORCE—GLOBAL VIGILANCE

Our global security environment drives an insatiable demand for integrated ISR. Today, the Air Force continues to sustain 60 Combat Air Patrols through crossdomain synchronization. With 74 percent of our ISR forces operating in direct support of combat operations, limited time remains for training and recuperation. The high demand impacts our ability to train and retain this critical skill set. Currently less than one third of our Rivet Joint linguists re-enlist, and our Intelligence career fields are critically manned.

This critical reduction of experience, coupled with the insatiable demand for Collection Management, Targeting, Expeditionary Signals Intelligence, and Airborne ISR Operators drove heavy reliance on contract personnel. While contract personnel fill a just-in-time requirement—and perform admirably—this solution does little for the long-term health of the ISR Enterprise.

To improve the quality of mission for our ISR community, the budget includes funds to create a dedicated launch and recovery MQ–1/9 squadron, increase training, and restore two MQ–9 operations squadrons. Additionally, the budget funds training for enlisted operators to fly the RQ–4 Global Hawk and funds a basing study to provide options to eventually fly RPAs on a schedule more conducive to steady-state operations.

Equally strained are the more than 7,000 airmen working in our Distributed Common Ground System. These airmen supported over 29,000 ISR missions, analyzed more than 380,000 hours of full motion video and disseminated 2.6 million images to our warfighters in the last year. They have now operated at these surge levels for over a decade. Therefore, this budget continues to invest in our ISR Enterprise to provide globally integrated ISR that supports multi-domain, actionable intelligence for the Joint Force.

As we testified last year, space and cyberspace threats continue to grow. In space, our Global Positioning System provides the world's gold standard, supporting citizens across the globe every day. Fortunately, our 40 existing Global Positioning System satellites remain healthy, but they are exceeding projected service life. To maintain this capability and to build readiness for any potential conflict, we are requesting support to improve anti-jamming and secure access of military Global Positioning Systems. We also continue to partner with the Joint Force on the Space Security and Defense Program and the Joint Interagency Combined Space Operations Center to develop options for a more resilient National Security Space Enterprise.

Our cyberspace capabilities are essential to every Airman, platform, and mission in our portfolio. Therefore this budget request makes strategic investments in our

cyberspace capabilities. For instance many of our weapons systems were developed prior to the emergence of the rapidly evolving cyber threats existing today. A cyber intrusion could significantly impact our ability to project vigilance, reach, and power anytime, anywhere. To improve offensive and defensive cyber readiness, we plan to grow our 26 Cyber Force Mission Teams to 39 fully operational teams by fiscal year 2019 and continue our investments in the Joint Information Environment.

Turning to command and control, this is the glue that enables Joint Force operations and provides the essential link between our Joint Force Air component commander and all Joint Forces working for combatant commanders. The ability to understand changing battlefield conditions and command friendly forces is central to an effective, agile combat force especially as we face more threats that are transregional and span from traditional state adversaries to non-state unconventional forces. At any of our Air Operations Centers, located in every combatant commander's area of responsibility, you will find airmen providing the backbone and expertise to integrate effects from every warfighting domain. The budget also includes funds to upgrade legacy equipment to open architectures to ensure critical security improvements. Our E–8 Joint Surveillance Target Attack Radar System (JSTARS) is 47 years old and will begin to reach the end of its service life next year. The E–3 Airborne Warning and Control System (AWACS) is 35 years old and requires multiple upgrades to keep this capability ahead of emerging threats. We need your support for this budget to fund mature communications, sensors, and Battle Management Command and Control system technologies to recapitalize our JSTARS and AWACS.

STATE OF THE AIR FORCE—GLOBAL REACH

Airmen perform the Rapid Global Mobility mission every day in areas of peace and conflict, and provide our Nation the ability to move the Joint Force rapidly to any point on the globe. Flexibility allows airmen to deliver bombs and bullets to the Joint Force in Iraq and Afghanistan, as well as blankets and bundles of life-saving relief supplies. Following last year's devastating earthquake in Nepal, C–130s and C–17s, refueled by KC–135s, accomplished over 150 missions delivering more than 800 tons of cargo. This core mission was also exemplified in March 2011 when we executed more than 300 airlift and combat sorties in a single day. During that time, every combatant commander had a Priority 1 mission, and the Air Force accomplished each one without fail. We simultaneously delivered humanitarian relief to tsunamiravaged Japanese cities, established and enforced a no-fly zone over Libya with Operations Odyssey Dawn and Unified Protector, surged forces in Afghanistan for Operation Enduring Freedom, and supported Presidential airlift.

Today, airframes have aged significantly and some of the same tankers refueling aircraft over Iraq and Syria were present over Vietnam. In fact, the Air Force's oldest flying KC–135, assigned to the 190th Air Refueling Wing at Forbes Field, Kansas, was refueling aircraft when some Vietnam-era pilots were still in elementary school. This year's investments begin to recapitalize refueling capabilities with the KC–46A and are essential to combat operations in anti-access/area denial environments. It also accelerates the C–130 Avionics Modernization Program and funds modernization to sustain our approximately 40-year-old MC–130 and AC–130 fleet, which support our Special Operations Command.

STATE OF THE AIR FORCE—PEOPLE AND INFRASTRUCTURE

Full-spectrum readiness cannot be achieved without investing in our Total Force Airmen. Maintaining our strategic advantage necessitates reaching, recruiting, retaining, and developing the broadest and most talented All Volunteer Force our Nation has to offer. To improve mission quality in fiscal year 2016, we are increasing accessions and expanding our retention programs to bring our inventory from 311,000 to 317,000 Active Duty airmen to address a number of key areas, including critical career fields such as intelligence, cyber, maintenance and battlefield airmen. In the aircraft maintenance field, we are short approximately 4,000 aircraft maintainers. Our maintainers must keep our existing aircraft flying at home and in combat, while simultaneously fielding the F–35. Due to an ongoing shortage of Active Duty aircraft maintainers, this budget request will fund contract maintenance personnel to fill the gap at select non-combat A–10, F–16, and C–130 units allowing our Active Duty maintainers to transition to the F–35. This allows us to strike the best balance between meeting today's demand while modernizing for the future.

As stated previously, we project airpower from our bases, and our infrastructure must keep up with modernization and recapitalization to sustain a ready force. To consolidate management, reduce overhead costs, and increase efficiencies, we centralized installation management under the Air Force Installation and Mission Sup-

port Center. This new command structure consolidates installation support requirements from the headquarters, major commands, and multiple field operating agencies. This budget request prioritizes readiness and modernization over installation support. With this decision we focused investments on a "mission critical, worst first" philosophy, funding projects with the most mission impact. Today the Air Force maintains infrastructure that is in excess of our operational needs. We have 500 fewer aircraft today than we had 10 years ago, yet they are spread across the same number of bases. This arrangement is inefficient with aging, unused facilities consuming funding that should be used for readiness and modernization. A reduction and realignment of Air Force infrastructure would best support Air Force operational needs, therefore we support another round of base realignment and closure.

FUTURE STATE OF THE AIR FORCE

The Air Force, in consultation with combatant commanders, academia, and think tanks, developed a 30 Year Strategic Plan to make our forces more agile to effectively respond to future global conflicts. The plan provides for increased capability across all mission areas, specifically Adaptive Domain Control, Globally integrated ISR, Rapid Global Mobility, Global Precision Strike, and Multi-domain Command and Control. Yet, budget uncertainty has complicated our ability to execute this plan. Furthermore, the Air Force faces a modernization bow wave over the next 10 years that requires funding well beyond the BCA caps—this includes critical programs necessary to meet our capacity and capability requirements across all mission areas. Although we are grateful for the Bipartisan Budget Act relief, we still face great uncertainty for fiscal year 2018 and beyond. Without the funding requested in this budget, we cannot meet current demand for Air Force capability and capacity without sacrificing modernization.

As our potential adversaries employ increasingly sophisticated, capable, and lethal systems, your Air Force must modernize to deter, deny, and decisively defeat any actor that threatens the Homeland and our national interests. Without the resources requested in our fiscal year 2017 budget, we will delay F–35 and C–130H recapitalization, defer some fourth-generation aircraft modifications, slow our planned end strength growth and take even more risk in Air Force infrastructure. A return to Budget Control Act funding levels would necessitate delays to modernization efforts. It would also further erode the already shrinking capability gap between America and our adversaries, and it would defer critical investments in space and cyber.

A return to Budget Control Act funding in fiscal year 2018 would force us to revisit actions taken during fiscal year 2013's sequestration—actions that devastated readiness and broke faith with our airmen. We would be forced to divest force structure, disrupt readiness recovery, delay modernization efforts, defer investments in space and cyber, and triage maintenance on infrastructure and aircraft. It would continue to degrade base infrastructure, delay airmen growth, and limit critical skill set recruitment and retention resulting in a less ready, less capable force. Air Force readiness depends on your support of this this budget and your support for repeal of the Budget Control Act to remove the threat of sequestration—permanently.

CONCLUSION

In the face of a dynamic, complex, and unpredictable future, your airmen provide a strategic advantage over America's rivals. They are educated, innovative, and motivated. Our airmen's ability to see threats, reach threats, and strike threats is a powerful deterrent against America's enemies. These courageous airmen, when properly trained, effectively equipped, and emboldened by the trust of their leadership, will ensure the Air Force continues to outwit and outlast opponents in Joint and Coalition operations and defend the United States from any who would do us harm.

As our Army and Marine Corps get smaller, they do not want less airlift; they want it to be more responsive. As combatant commanders look toward battlefields of the future, they do not want less ISR; they need more persistent, capable, and agile ISR. We have the responsibility to assure air superiority so American soldiers and marines keep their eyes on their enemies on the ground rather than concern themselves with enemy Airpower overhead.

The fiscal year 2017 budget request—and the flexibility to execute it as we recommended—is an investment in the Air Force our Nation needs. The global developments remind us that America's Air Force must have the capability to engage anytime, anywhere, and across the full spectrum of conflict, all while providing a reliable strategic nuclear deterrent. America expects it; combatant commanders require it; and with your support for this budget request, our airmen will deliver it.

Senator AYOTTE. Thank you, General.

I would like to start by asking each of you, What is your leading readiness concern as we think about where we stand? Appreciate the testimony that you've given, but if you can tell me, What are the things—what is the thing that keeps you up at night, readiness-wise?

General ALLYN. Thanks, Madam Chair.

For the United States Army, our number-one readiness risk is sequestration. We must have sustainable and predictable and sustained funding to deliver the readiness that our combatant commander requires—require to meet the missions that continue to emerge. Elimination of sequestration is our greatest risk to future readiness.

Admiral HOWARD. Madam Chair, I would echo those comments. I was at the fleet when we actually sequestered. We ended up canceling deployments, shifting maintenance periods to meet the savings required to meet the new budget top-line. It—the ripple effect of that goes through the years. You not only lose the maintenance time, but you lose qualification time for people in that experience that can never be bought back, because you can't get the time back. Particularly for us, as a capital-intensive force, having a stable budget, being able to procure and maintain our ships with certainty allows us to maintain a ready fleet.

Thank you.

Senator AYOTTE. Thank you.

General PAXTON. Thank you, Chairman.

I concur with both the VCA—Vice Chief of the Army and the VCNO. The continued impacts of sequestration are felt over multiple years. We have not had a stable fiscal planning environment for 3 years now. We are—we continue to make hard tradeoffs, and we mortgage our future readiness, because we're trying to fight today's fight. I have concerns about capacity and future readiness. Everything we do is trade space, and we need some top-line relief, ma'am.

Thank you.

General GOLDFEIN. Ma'am, and I'll just continue the same dialogue. When we stopped flying in—when we were sequestered, we shut down and grounded 31 fighter squadrons. When an Air Force stops flying, it's actually felt across the enterprise, because not only is it the aircrew that stop training, it's the air traffic controllers that stop training, it's the folks that actually all participate in producing airpower, and it extends into the depots that all work towards becoming our readiness engine. For us, we're still climbing out of the impacts of sequestration.

I would just add, one point is that we also broke faith with our airmen, especially our civilian airmen. When they were furloughed, we lost a number of them who decided that if the company was not invested in them, they were not going to stick with the company. For us, repeal of sequestration is job one.

Thank you.

Senator AYOTTE. Thank you all.

General Goldfein, I wanted to have you provide us an update on the KC–46A and where they stand with the delivery to Pease. I saw, in the Air Force request, that you've requested funding in

2017 for a KC–46A fuselage trainer at Pease. Is that important training resource as we base the KC–46A at Pease?

General GOLDFEIN. Yes, ma'am. Right now, the KC–46 is on track to meet both their required aircraft availability delivery date, which is 18 aircraft in August of 2017. We have had some testing delays. The impact of that is that, in a normal schedule, we would have aircraft, you know, be produced, we would induct them into the Air Force, we would do the maintenance and the testing on those. What's happening is, even though we believe they're going to be able to meet their required aircraft delivery date, we're going to get a number of aircraft all at once. As we work our way through that, we believe that we're going to be able to absorb that in the first two bed-downs, which is Altus and McConnell. By the time they actually get to Pease Air Force Base, we believe that we'll actually be back on track. We're watching that very closely.

We have had some issues lately with some boom axial loads, but we think we actually have the software fix in place, so we're on track, we believe, to meet the IOC dates.

Senator AYOTTE. Excellent. Appreciate it. I know that our airmen and all at Pease are anxiously waiting and ready, so we appreciate it—the update. Keep us updated on where things stand there.

I wanted to ask, Admiral Howard—you and I talked about the *Virginia*-class submarine. Of course, you've been to the shipyard, and I appreciate your visit there. Right now, are we able to meet all the combatant commanders' requests for support from our attack submarine fleet?

Admiral HOWARD. Ma'am, thank you for that question.

Across our entire fleet, we're not able to meet the combatant commander requests. Generally, their accumulated requests are—is about three times higher than the force that we have. Our SSNs and their multimissions are very important to the combatant commanders.

Senator AYOTTE. As you talked about in your opening testimony, the size of the fleet, it—obviously, our attack submarine fleet's phenomenal, but presence is very important, especially as we think about the Asia-Pacific region and also the Middle East and various areas around the world that we have to cover.

As I look at—right now, under the Navy's current plan—you and I talked about this, but—by 2021, we're at one—producing one *Virginia*-class submarine a year, versus two. I know that Secretary Stackley had testified that he would be open to the idea of, if you were able to have enough—achieve enough savings in the *Ohio*-class replacement program, that he would like to see you purchase two in 2021.

Now, I understand you can't answer that question now until you know what the planning is, and investment in the *Ohio*-class program, going forward. But, do you agree with Secretary Stackley that, if—obviously, if this were something that you were able to achieve the savings and we were to give you the certainty that you needed, that there is an urgency and importance to making sure that we continue to build up and strive for the two production of *Virginia*-class submarines from 2021, going forward?

Admiral HOWARD. Yes, ma'am, I do. Yes, Senator, I do.

In our last force-structure assessment, we believe we need about 48 SSNs. As we've been buying two a year, then, as the older ones start to reach the end of their lifecycle, we will be down to 48 in 2024, and then we continue to drop in numbers until we get into this bathtub in the 20s. In order to make sure we don't get to that bathtub, we're going to have to continue to build two, and we're going to have to figure out how to get there.

In terms of the *Ohio* replacement, one of our issues will be whether or not we will have to manage that funding for that asset. It's a strategic asset. I certainly appreciate this group's work on the strategic deterrence fund, but if we have to fund *Ohio* replacement within our budget top-line, that will affect all of shipbuilding and actually affect the rest of the conventional force, as well.

Senator AYOTTE. Excellent. Thank you, Admiral Howard.

I would now like to call on Senator Kaine.

Senator KAINE. Thank you, Madam Chair.

Thanks, to the witnesses.

General Allyn said something. I just took it down quickly. I think I got the quote right, "Sequestration is the greatest risk to future readiness." I believe that that's true. Sequestration was driven by a reality that we also have to acknowledge, which is, we do have an increasing debt that we have to manage. The deal that was struck, the BCA [Budget Control Act of 2011] cap deal on August of 2011, basically punished a lot of our operations, discretionary spending, and defense spending, as a way of forcing the effort to find a deal. The deal was, basically, supposed to be a deal that dealt with the costs of Medicaid and Medicare, on one hand, and the escalating tax expenditure suck out of the revenues, on the other hand. We haven't done that deal. You know, just bluntly, Democrats generally are loathe to get involved in Medicaid and Medicare reform, and Republicans are loathe to get into tax reform. But, if we don't do that deal at some point, we can't just say the deficit doesn't matter. Because it does. The sequester is going to stay on.

The need to release sequester is going to demand of us a willingness to show backbone and find some reforms in these areas that, in the past, has been difficult to do. But, I really pray that, as a U.S. Senator, I'm going to get to cast a vote on a big tax reform and spending reform package that will enable us to just put sequester in the dustbin, where it belongs.

The—I'm going to ask this question for the record. Senator McCain has written a letter to the Service Chiefs in—asking for fiscal year 2017 unfunded requirements priorities list. Chatted with you about some of that. Some of the material is starting to come over to the committee. The unfunded requirements and priorities are not, themselves, prioritized. For the record, I'm going to ask that the Service Chiefs' submissions, in fact, be prioritized, because it will help us, if we decide, can we do some additional resources, to know how those would be applied by the services. I'll ask that question for the record.

[The information referred to follows:]

General ALLYN. The Army Staff conducted a fair and in-depth assessment of the Army's fiscal year 2017 budget request; the fiscal year 2017 Unfunded Requirements (UFR) list prioritizes the shortfalls and related impacts to the Army's ability

to address security challenges identified by our national leadership. The UFR list has been prioritized and identifies top Army operational requirements totaling $1.0 billion and Military Construction requirements totaling about $300 million. The prioritized UFR list does not displace what was already submitted as part of the President's Budget. Instead, these items would increase the Army's funding topline for fiscal year 2017 and reduce risk. Critical Tier I funding priorities include the following: the National Commission of the Future of the Army (NCFA) recommendations, which are a strategic assessment of the capabilities and capacity of the future force and emerging strategic environment; strategic mobility, which includes the maintenance support costs for prepositioned equipment sets and war reserve ammunition shortfalls to support deterrence activities in Europe; operational shortfalls in support of combatant commanders in support of critical near-term readiness including many key Intelligence, Surveillance and Reconnaissance (ISR) assets, which will provide ISR support and intelligence products for analysts to answer commander's priority intelligence requirements; capability upgrades to Vehicle Protection Systems, which provide enhanced protection and survivability in order to retain a technological edge; and high priority readiness requirements to include funding for home station training, ground operational tempo, training ammunition, improvements to our Combat Training Centers program, emergency deployment readiness exercises, range support, individual skills training and Second Destination Transportation which impact the Total Force.

Providing funding for the prioritized requirements on the UFR list would enhance the readiness of the nation's land forces and should only come as an additive increase to the Army's fiscal year 2017 topline. The complete prioritized UFR list was provided directly to the Congressional office.

Admiral HOWARD. Attached is the Navy's fiscal year 2017 unfunded priorities list below.

DEPARTMENT OF THE NAVY
CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON DC 20350-2000

February 29, 2016

The Honorable John McCain
Chairman, Committee on
Armed Services
United States Senate
Washington, DC 20510

Dear Chairman McCain,

Thank you for your February 10, 2016 letter regarding unfunded requirements in our Fiscal Year (FY) 2017 President's Budget (PB-17). I strongly believe that our PB-17 budget delivers the best balance of credible options to achieve the Navy mission within fiscal controls. We prioritized investments in advanced capabilities to deliver a Navy with increased lethality that can pace the threat of our adversaries' technological advancements now and in the future.

Budget controls also required hard choices in FY 2017, with increased risk in capacity, readiness, and military construction. Should additional funding, above the President's Budget request, be available then my military advice would be to mitigate these risks by funding the projects listed in the attachment.

The enclosed list includes investments in critical capacities and enablers to strengthen naval power at and from the sea. If funded in addition to our PB-17 budget, these items will enhance our ability to maintain maritime superiority, provide electromagnetic warfare capabilities, and maintain infrastructure, readiness and wholeness. The procurement of additional F/A-18 and F-35 aircraft will further mitigate a concerning strike fighter inventory shortfall. The additional munitions procurements will fill a munitions shortfall and restore production to optimal execution levels. Further, recent developments since the submission of PB-17, such as the finalization of the FY 2017 Global Force Management Allocation Plan (GFMAP), have compelled some new funding requirements to maintain readiness levels. These are also included in my list. I have limited this list to distinct programs and investments that are executable in FY 2017.

A similar letter has been sent to the other congressional defense committees. I appreciate your support of the U.S. Navy.

Sincerely,

J. M. RICHARDSON
Admiral, U.S. Navy

Enclosure: Navy's Fiscal Year 2017 Unfunded Priorities List

Copy to:
The Honorable Jack Reed
Ranking Member

Enclosure 1: Navy's FY 2017 Unfunded Priorities List

Priority	Unfunded	Appn	TY$M
1	F/A-18E/Fs (+14 Aircraft)	APN	1,540
2	Final Increment of DDG 51 Partially Funded in FY16	SCN	433
3	F-35C (+2 Aircraft)	APN	270
4	RF Kill Chain Enhancements (+99 Counter Electronic Attack (CEA) Blk II Kits)	OPN	81
5	SEWIP Blk III (+1 system)	OPN	23
6	SSEE Inc. F (+3 Systems) and Paragon/Graywing (+3 Systems)	OPN	43
7	MK-54 Mod 0 Lightweight Torpedoes (+23 torpedoes)	WPN	16
8	AIM-9X Sidewinder Missiles Blk II (+75 missiles)	WPN	33
9	Joint Direct Attack Munitions (JDAM) Components	PANMC	58
10	DDG BMD/NIFC-CA Modernization (+1 combat system)	OPN	65
11	LCS Over-the-Horizon Missile (LCS 3 and LCS 5)	WPN/OPN	43
12	Submarine Towed Arrays (+4 TB-29X and +4 TB-34X Arrays)	OPN	22
13	Surveillance Towed Array Sensor System (SURTASS) Array	OPN	10
14	Partial CG Modernization ship set (Restoration of ship set used for CG 62 repair)	OPN	70
15	Submarine Warfare Federated Tactical Systems (SWFTS) for SSNs (+2 Sets)	OPN	49
16	Afloat Readiness (Aviation & Ship Depots, Ship Support and OPTAR)	OMN	645
17	Condition-Based Maintenance (CBM) for Critical Building Systems (ST to 90%)	OMN	382
18	Fleet priority Restoration and Modernization (RM) special projects	OMN	262
19	CANES Acceleration (LPD 19 and DDG 73)	OPN	53
20	Ship to Shore Connector (SSC) (+3 craft)	SCN	165
21	LCU 1700 (+ 1 craft)	SCN	22
22	PCS Funding (Restores 15,000 PCS moves reduced due to BBA limits)	MPN	156
23	Shore Support (Physical Security Equipment and Environmental Restoration)	OMN/OPN/ER	68
24	Remediation of system and process deficiencies in support of auditability	OMN	44
25	Replacement of R-SUPPLY program in support of auditability	OMN	10
26	Critical Aviation and Test Facility Upgrades (range and test facility hangars)	RDTEN	12
27	Full Scale Aerial Targets (FSAT) (QF-16) (+5 targets)	RDTEN	26
28	High Speed Maneuverable Surface Target (HSMST) (+56 targets)	OPN	10
29	Training Ranges - Barking Sands Tactical Underwater Range	OMN	9
30	C-40A (+2 Aircraft) (Reserve's personnel and cargo aircraft)	APN	207
31	T-ATS(X) (+1 Ship)	SCN	75

Priority	MILCON Unfunded	Appn	TY$M
1	NS Norfolk / Chambers Field Magazine RECAP Phase 1 MILCON Project (P-495)	MCN	27
2	SEAWOLF Class Service Pier-Bangor MILCON (P-834)	MCN	73
3	A-School Dormitory (P-711, Pensacola, FL) (QOS investment)	MCN	53
4	Advanced Wastewater Treatment Plant MILCON Project (P-663, Mayport, FL)	MCN	66

F/A-18E/F *Super Hornet* Fighter Aircraft (+14 Aircraft)

Strike Fighter Inventory Management continues to be challenged with end-of-life planning for F/A-18A-D legacy aircraft, the requisite integration of F-35C aircraft, overutilization of current aircraft due to high operational tempo, and aviation depot maintenance backlogs. Although the FY 2017 President's Budget (PB-17) takes many steps towards addressing the gap with legacy aircraft sustainment, new aircraft procurement, and fleet utilization, an additional 14 aircraft in FY 2017 will reduce near-term Strike Fighter shortfalls, and address a long term inventory shortfall by assuring aircraft with useful life into the 2030s.

Final Increment of DDG 51 Partially Funded in FY 2016
The FY 2016 Appropriations Act provided $1 billion to support procurement of an additional DDG 51 to the FY 2013-2017 10-ship multi-year procurement contract. To complete procurement, an additional $433 million is required. This additional DDG would increase large surface combatant capacity and drive cost reductions to the remaining ships in the multi-year procurement contract.

F-35C Lightning II JSF Aircraft (+2 Aircraft)
The F-35C, with its advanced sensors, data sharing capability, and ability to operate closer to threats, will enhance the carrier air wing's ability to find targets and coordinate attacks. Two additional aircraft in FY 2017 will level the FY 2016-2018 procurement ramp and continue to mitigate the strike fighter shortfalls as we transition to and integrate F-35C aircraft.

RF Kill Chain Enhancements (+99 Counter Electronic Attack-Block II Kits)
Air-to-Air Radio Frequency (RF) Kill Chain kits provide aircraft the ability to counter sophisticated digital weapons and combat systems proliferated around the world today. These additional kits will restore a deferment in our PB-17 budget due to the FY 2017 Bipartisan Budget Act of 2015 (BBA) reduction, allowing the outfitting of two carrier air wings.

SEWIP Block III Advanced Electronic Detection Systems (+1 Unit)
The Surface Electronic Warfare Improvement Program (SEWIP) Block III provides for upgraded electromagnetic sensing and electronic attack capabilities for surface ships. The additional unit will increase FY 2017 procurement from two to three systems, providing increased shipborne Electronic Attack and counter targeting capabilities.

SSEE Increment F (+3 Systems) and Paragon/Graywing (+3 Systems)
The Ship's Signal Exploitation Equipment (SSEE) system and Paragon/Graywing system increase Information Warfare (IW), Information Operations (IO), non-kinetic, and subsequent tactical cryptologic capabilities. These additional systems would restore a FY 2017 reduction due to the BBA.

MK-54 Mod 0 Lightweight Torpedoes (+23 torpedoes)
The additional MK-54 torpedoes would restore a 2017 reduction due to the BBA and return the procurement profile to the minimum sustaining rate (MSR) of 137 torpedoes.

AIM-9X Sidewinder Missiles Block II (+75 missiles)
The additional AIM-9X missiles would restore the FY 2017 procurement levels and address shortfalls to the AIM-9X Block II Pre-Combat Loadout (Pre-CLO) requirement.
Joint Direct Attack Munitions (JDAM) Components (GP Bombs)
The additional funding will procure General Purpose (GP) Bomb components to return to Combat Requirement levels. Current combat operations are expending assets at a rate that will cause the 500 lb JDAM current inventory (with PB-17 funding) to approach zero in FY 2019.

DDG 51 BMD/NIFC-CA Modernization Package (+1 Combat System)
Procuring one DDG 51 combat system ship set in FY 2017 will allow us to modernize an additional ship in FY 2019, increasing our capacity to meet Combatant Commander Ballistic

Missile Defense (BMD) demand and provide Naval Integrated Fire Control – Counter Air (NIFC-CA) capabilities needed to counter advanced missiles and strike fighter aircraft. This will improve our ability to pace the threat against a high-end adversary weapons system, particularly in Anti-Air Warfare and BMD mission areas.

LCS Over-the-Horizon Missile (for LCS 3 and LCS 5)
Since submission of the PB-17 budget, the Navy has decided to accelerate the backfitting of Over-the-Horizon missiles on LCS ships to improve their lethality. This funding would procure eight missiles (4 per ship) and launcher installation, integration, and testing to allow outfitting of LCS 3 and LCS 5 in FY 2017 prior to their next deployment.

Submarine Towed Arrays (+4 TB-29X and +4 TB-34X Arrays)
The submarine towed array system improves detection, classification and tracking capabilities for deployed *Virginia*-class SSN. Accelerating procurement by four additional TB-29X and four additional TB-34X arrays will improve operational availability of advanced towed sensors and flexibility of operational forward deployed submarines. It will also increase spares inventory to improve towed array reliability and provide sufficient assets to equip deployed submarines with improved arrays.

Surveillance Towed-Array Sensor System (SURTASS) Array (+1 Array)
An additional array will increase operational availability of ready spares to outfit Pacific Fleet assets. This funding will procure the array, tow cable, shipboard operating and support equipment, and ship allowance for spare modules.

Partial CG Modernization Ship Set (Restoration of ship set used for CG 62 repairs)
This additional funding would restore components of a CG modernization ship set that was partially used for emergent repairs to the USS Chancellorsville (CG 62) due to an exercise collision with an unmanned drone. The funding would restore the ACB-12 shipset, as well as other components (e.g., 5" gun, Navy Multi-Band Terminal, All Electric mods, CANES).

Submarine Warfare Federated Tactical Systems (SWFTS) for SSNs (+2 Sets)
The additional submarine combat system upgrades will accelerate system improvements on two SSN submarines and improve submarine mission execution and safety of ship.

Afloat Readiness (Aviation& Ship Depots, Ship Support and OPTAR)
Several Operations and Maintenance accounts were reduced due to the BBA. This will restore funding to the following priority accounts:

- Aviation Depot Maintenance - $34M – Supports additional airframe and engine overhaul, repair, and maintenance events.
- Aviation Logistics - $16M – Funds E-6B and F-35 sustainment contracts.
- Ship Depot Support - $79M – Funds will impact all ship support programs and prevent degraded support for depot maintenance planning and execution.
- Ship Operations (OPTAR) - $158M – Funds will reduce the number of open casualty reports on surface ships.

- Ship Depot Wholeness - $238M – Fact of life changes since PB-17 budget submission. $188M due to changes in all Fleet CNO availability durations and man-days. $50M due to changes in overtime rate from 12% to 15% to manage additional workload.
- PONCE Operations & Sustainment - $59M – Funds PONCE operations through FY 2017.
- Fully fund three CG Deployments - $41M – Based on the recently finalized GFMAP, three CGs planned for induction into phased modernization will now be deployed through the end of FY 2017. The PB-17 budget only included half-year funding for the FY 2017 inducted ships. This funding will provide the remaining half-year funding for these three ships to meet FY17 deployment and operational requirements.
- Ship Support - $20M – Restores funding to ship level maintenance programs that enable ship's force to affect repairs at the lowest level (such as the 3M and PQS Programs) and funding for logistics support for ships away from homeport.

Condition-Based Maintenance (CBM) for Critical Building Systems (ST to 90%)
This additional investment will arrest growth of deferred sustainment in all buildings and address the backlog of deferred sustainment of critical systems in critical buildings, enabling the Navy to meet the Office of the Secretary of Defense (OSD) sustainment funding goal of 90% of the Facilities Sustainment Model.

Fleet priority Restoration and Modernization (RM) special projects
Special projects include:

- Repairs to address necessary improvements to submarine moorings in Guam (heavy weather mooring repairs at Alpha Wharf) and flight safety issues at Pax River and Oceana, along with structural issues associated with the Aegis RDT&E facilities at Wallops Island.
- Repairs to runways 14-32 and 06-24 Pax River and runways T1-T4 and T6-T8 circuits NSA Andersen; Aegis facility foundation and crawl space repairs, Little Creek; Modernization of airfield lighting NAS Oceana; Phase 1 structural repairs to the Indian Island; Ammunition pier repairs to Poseidon Wharf, NOTU, Port Canaveral; Repairs to communication center NAS Sigonella; Critical building repairs to C4I facility Rota.
- Repairs to FRC MA hydraulic shop, NAS Oceana; Mike and November Wharfs, Guam; DD6 capstans, Yokosuka; and Repairs to training facility NS Norfolk.
- Repairs to address necessary structural improvements to piers, and facility repairs to hangar and training facilities and an aircraft parking apron.
- Funds Hangar 404 repairs, NAS Oceana; Rickover Hall repairs, USNA; Phase 2 structural repairs to ammunition pier, Indian Island; and Aircraft parking apron repairs, Norfolk.

CANES Acceleration (LPD 19 & DDG 73)
Accelerates CANES fielding on LPD-19 (Install) and DDG 73 (Tech Refresh) to replace legacy networks and improve the cybersecurity posture on afloat naval platforms.

Ship to Shore Connector (SSC) (+3 craft)
Three of five SSCs were cut in FY 2017 due to BBA balancing. This funding restores procurement to 5 craft, providing enhanced opportunities for Economic Order Quantity (EOQ) savings, as well as avoiding costly sustainment funding on aged LCAC.

LCU 1700 (+ 1 craft)
An additional craft will fill a FY 2017 gap in procurement due to the BBA reduction and provide enhanced opportunities for EOQ savings, as well as avoid costly maintenance on current LCU beyond 2028.

Permanent Change of Station (PCS) Funding
This will restores approximately 15,000 PCS moves that were reduced due to the BBA reduction. Additional PCS moves alleviate near-term risk to operational readiness by reducing gaps in personnel rotations and preventing a backlog of required moves that would impact future years.

Shore Support (Physical Security Equipment and Environmental Restoration)
- Physical Security Equipment - $50M – Provides physical security equipment (card readers, cameras, notification systems, etc.) sustainment support for Navy Installations and Navy Operational Support Centers.
- Environmental Restoration - $18M – Enables Navy to clean contamination found in drinking water supplies at Naval Auxiliary Landing Field (NALF) Fentress. Also, enables the cleanup of high risk sites that were otherwise deferred due to the urgency of response at NALF Fentress. Funds high priority environmental restoration efforts at NALF Fentress (Chesapeake, VA) for contamination in off-base drinking water supply.

Remediation of system and process deficiencies in support of auditability
This funds the continued audit efforts to meet the Department of the Navy (DON)'s audit milestones. While the PB-17 supports continuation of FY 2016 efforts for audit, these additional funds are needed to properly support the DON's schedule to achieve and sustain financial auditability mandates in FY2017. This funding addresses requirements for: continuous assessment of IT system controls to include financial and business feeder systems, the remediation of system deficiencies as identified, and the additional data management infrastructure to support documentation retention requirements for audit.

Replacement of R-SUPPLY program in support of auditability
This funds the design audit functionality into R-Supply, provides transactional transparency into Maintenance Figure of Merit (MFOM), and completes the analysis of alternatives for Naval Operations Business Logistics Enterprise (NOBLE), the future replacement to Navy Tactical Command Support System (NTCSS), the host of R-Supply.

Critical Aviation and Test Facility Upgrades (range and test facility hangars)
This funds a comprehensive life extension and repair to the Major Range and Test Facility Base (MRTFB) hangars. Hangars support all Naval aircraft (manned and unmanned) and weapons testing programs at Naval Air Warfare Center Aircraft Division (NAWCAD) and Naval Air Warfare Center Weapons Division (NAWCWD) to include: JSF, F/A-18 E/F, EA-18G, UCLASS, BAMS, P-8, VH-92, EA-6B, and weapons. MRTFB is responsible for the maintenance of 13 hangars. Eight of these hangars were constructed in the 1940s and are in need of overhaul. Except for one, none of these hangars has undergone a complete overhaul since their initial construction.

Full Scale Aerial Targets (FSAT) (QF-16) (+5 targets)
This procures an additional five QF-16 targets to address aircraft and weapon systems testing and development throughout the FYDP, which include JSF, AIM-9X, AMRAAM, and SM-6.

High Speed Maneuverable Surface Target (HSMST) (+56 targets)
This procures an additional 56 surface targets to meet Fleet training requirements, bringing the total in FY 2017 to maximum production quantities.

Training Ranges - Barking Sands Tactical Underwater Range
This supports the DON's Optimized Fleet Response Training Plan and mission readiness of deployable units and strike groups. It supports critical Barking Sands Tactical Underwater Range (BARSTUR) refurbishment and Large Area Tracking Range (LATR) Navigation Tech Refresh; both identified as critical and immediate shortfalls.

C-40A (+2 Aircraft)
C-40A executes the Navy Unique Fleet Essential Aircraft (NUFEA) mission and provides Combatant and Component Commanders with short-notice, quick-response, intra-theater air logistics support as well deliver medium and heavy lift capabilities in direct support of Fleet requirements. The current inventory of C-40A is 14 aircraft with one on order. This request for two additional C-40A aircraft would complete the inventory objective of 17 C-40A aircraft. The C-40A warfighting requirement remains 23 aircraft; however, the fiscally constrained inventory objective of 17 aircraft will provide adequate capacity at acceptable levels of risk.

T-ATS(X) (+1 Ship)
This procures one ship in FY 2017 to enable procurement of one ship per year across the FYDP.

MILITARY CONSTRUCTION

NS Norfolk / Chambers Field Magazine RECAP Phase 1 MILCON Project (P-495)
This project addresses inadequate magazine storage due to outdated design, size, and configuration; inadequate material handling facilities and equipment support, and the excessive maintenance backlog, exceeding 50 percent of plant replacement value. It creates a faculty to support MH-60S 2.75" rocket and 20 mm gun firing exercises and Airborne Mine Neutralization System (AMNS) training. Currently, the truck holding area is also used for armed helo and submarine countermeasure buildup. However, these unique missions cannot be performed concurrently; only one can be accomplished at a time within explosive safety siting requirements. Design, size, configuration and capacity of WWII era magazines do not support modern ordnance. Increasing mission and lack of onsite storage drives increased handling and movement of ordnance. This will also support onsite storage for USMC anti-terrorism unit and Special Warfare contingency load plan.

SEAWOLF Class Service Pier-Bangor MILCON (P-834)
Upon review of current ship maintenance availabilities, this project is requested for acceleration into FY 2017 to minimize conflict with early phases of construction. This project constructs a new, single level, general purpose berthing extension to the service pier at NAVBASE Kitsap-

Bangor. It constructs new utilities, compressor building, parking, and maintenance laydown areas. It also installs a new industrial multi-phase emergency generator and modifies the existing utilities building on the service pier. When constructed, this project will enable relocation of SSN-21 and SSN-22 from Bremerton and co-locate all SEAWOLF class submarines at Bangor with SSN-23. This will result in a reduction of maintenance project teams from three to one and support increased operational availability.

A-School Dormitory (P-711, Pensacola, FL) (QOS investment)
This project will enable cost avoidance of the high expense to house transient personnel on the local economy due to overcrowding and unhealthy conditions resulting from attempting to place students in limited on-base housing. It will renovate four facilities to provide adequate "A" School Bachelor Enlisted Quarters space for 550 E-1 to E-4 students training at the Naval Air Technical Training Center and repair the galley.

Advanced Wastewater Treatment Plant MILCON Project (P663, Mayport, FL)
This project will achieve long-term regulatory compliance for Naval Station Mayport's wastewater treatment and discharge to the St. John's River. It will construct an advanced wastewater treatment plant to treat raw sewage from ships' collection, holding and transfer (CHT) tanks and shore-based support operations, and demolishes an existing sewage treatment plant. This will ensure Naval Station Mayport can comply with Florida statutes.

General GOLDFEIN. The Air Force's fiscal year 2017 Unfunded Priority List provided in March is presented in priority order. The first five requirements listed are our highest priority requirements. These top requirements focused on the tough choices we made in fiscal year 2017 to stay within the 2015 Bipartisan Budget Act topline. Beyond those tough choices, the Air Force focused on Modernization, Readiness, and Installation Support; which directly support the SecAF's three priorities . . . taking care of people, striking the right balance between readiness and modernization, and making every dollar count. The requirements give our airmen the equipment they need, the training to meet readiness requirements, and the facilities to work and enhance quality of life.

General PAXTON. Please see the attached prioritized Unfunded Priority List for the Marine Corps below.

2	13	Buy Back	POM17 Buy Back - PCS	MPMC	49,000
	14	Buy Back	POM 17 Buy Back - Foreign Language Proficiency Bonus Pay	MPMC	8,000
	15	Buy Back	POM17 Buy Back - MV-22	APN	150,000
	16	Buy Back	POM17 Buy Back - KC-130J Operation Tomodachi Engine RADCON	APN	36,000
	17	Buy Back	POM17 Buy Back - KC-130J Operation Tomodachi Engine RADCON	OMN	6,800
	18	Enhancements	F-35B Spares	APN	50,800
	19	Enhancements	KC-130J Aircraft	APN	158,000
	20	Enhancements	C-40 as C-9 Replacements	APN	207,500
	21	Enhancements	AH-1Z	APN	57,000
	22	Enhancements	UC-12W	APN	32,600
	23	Enhancements	Enhanced Combat Helmet (ECH)	OMMC	22,000
	24	Enhancements	Lightweight 155mm Chrome Tubes	PMC	14,000
	25	Enhancements	CESAS II	PMC	7,054
	26	Enhancements	DoD Enterprise Network Defense Technologies Integration and Sustainment (HBSS/ACAS)	OMMC	5,689
	27	Enhancements	Full Spectrum Cyber Operations	PMC	7,104
	28	Enhancements	Full Spectrum Cyber Operations	RDTEN	1,784
	29	Enhancements	Rifle Combat Optic Modernization	OMMC	13,281
	30	Enhancements	Identity Intelligence (I2)	OMMC	1,230
	31	Enhancements	Force on Force Training Systems (FoFTS)	PMC	3,400
	32	Enhancements	Joint Processing, Exploitation, and Dissemination (JPED) Center	OMMC	1,855
	33	Enhancements	Open Source Intelligence (OSINT)	OMMC	830
	34	Enhancements	GMLRS AW munition for HIMARS	PMC	19,290
	35	Enhancements	Broadband Meshable Data Link (BMDL)	PMC	2,500
	36	Enhancements	Master Reference Terminals (MRT)	PMC	315
	37	Enhancements	Unified Command suite Block 2	PMC	689
	38	Enhancements	Selective Reenlistment Bonus (SRB)	MPMC	18,600
	39	Enhancements	KC-130J Digital Interoperability Block7 (LINK16, CNS ATM, Long Range Navigation mandates) kits	APN	20,800
	40	Enhancements	Procure 2XF-35B and 2XF35C	APN	750,000
2 Total					1,646,121
3	41	Enhancements	Defense Systems LAIRCM/DAIRCM/APR-39DV2	APN	100,400
	42	Enhancements	APKWS II F/A-18A-D Capability	APN	25,900
	43	Enhancements	CH-53E Degraded Visual Environment (Brown Out) landing enhancements	APN	13,300
	44	Enhancements	H1 Technical Refresh Mission Computer (TRMC) Retrofit	APN	23,400
	45	Enhancements	AH-1Z Digitally Interoperable Full Motion Video (DI-FMV) kits	APN	5,400
	46	Enhancements	MV-22 Aft Sponson Fuel Tank	APN	5,000
	47	Enhancements	MV-22 Prooroter Blade Erosion Mitigation	APN	21,000
	48	Enhancements	Increases carry capacity of GBU (Bombs) from 1 to 4 for F-18 A-D (BRU55)	RDTEN	10,400
	49	Enhancements	20mm High Explosive incendiary (HEI) Point Detonating (PD) Round for soft targets	RDTEN	9,300
	50	Enhancements	V-22 Joint Performance Based Logistics (JPBL) Support-Improve Supply Support	OMN	5,410
	51	Enhancements	CTN-Common Block Array-Antenna (CAB-E)	RDTEN	1,400
	52	Enhancements	JSF-Tactical-Special Access Program Shelters	APN	1,000
	53	Enhancements	Link-16 (Digital Interoperability) for ATNAVICs	OPN	1,000
	54	Enhancements	"Critical/No Fail" EOD Mission Equipment	OMMC	550
	55	Enhancements	"Critical/No Fail" EOD Mission Equipment	PMC	21,300
	56	Enhancements	Consolidated Emergency Response System	PMC	1,000
	57	Enhancements	Enlisted Bachelor's Quarters: FMTB-E MCB Camp Lejeune, NC	MCN	40,700
	58	Enhancements	Installation Emergency Management (IEM)	OMMC	4,400
	59	Enhancements	Installation Security Systems	PMC	2,200
	60	Enhancements	Installation Security Systems	PMC	4,000
	61	Enhancements	SECNAV Task DoN Talent Management Initiative Extending Gym Hours	OMMC	3,300
	62	Enhancements	Common Analytical Laboratory System (CALS)	PMC	352
	63	Enhancements	Enterprise Development and Test Environment (EDTE)	OMMC PMC	734 1,902
	64	Enhancements	IAMs for Rigid Shelters	OMMC	4,325
	65	Enhancements	Target Handoff System	PMC	38,400
	66	Enhancements	Technical Surveillance Countermeasures (TSCM)	PMC	22,770
	67	Enhancements	NGEN	PMC	8,965
	68	Enhancements	Application Server Modules (ASM)	PMC	150
	69	Enhancements	Rapid response Kit (RRK) Terminals	PMC	4,600
	70	Enhancements	Nano/VTOL Small Unmanned Aircraft Systems (UUNS)	OMMC	14,200
	71	Enhancements	RQ-21 Blackjack TIPS BLK III	PMC	8,960
	72	MCN Buy Back	POM 17 Buy Back - LHD Pad Conversion & New MV-22 LZ's MCB Hawaii, HI	MCN	12,800
	73	MCN Buy Back	POM 17 Buy Back - Combat Vehicle Repair Facility MCLB Barstow MCLB Barstow, CA	MCN	35,500
	74	MCN Buy Back	POM 17 Buy Back - Enlisted Dining Fac & Community Bldgs MCAS Yuma, AZ	MCN	34,500
	75	MCN Buy Back	POM 17 Buy Back - TBS Fire Station MCB Quantico, VA	MCN	17,200
3 Total					505,718

Senator KAINE. General Paxton, let me ask you about a couple of items with respect to the marines on aviation. The goal of the Osprey readiness is 87 percent, but it's about 60 percent today. About one-third of the Sea Stallion helicopters you need to train are ready today. Last year's hearing, you talked about the extensive backlog of requests for legacy model F/A–18 Hornets. Tell us a little bit about how we can help you best on this aviation readiness shortfall that you've described.

General PAXTON. Thank you for the question, Senator Kaine.

We continue to have challenges in our aviation communities, writ large. If I were to say—if you needed an exemplar of the impact of continued sequestration or the readiness dollars, I would tell you that the pacing indicator in the Marine Corps is our aviation community. Within that community, we are struggling to get F–—B–22 parts to keep them online, and we are struggling for maintenance for the F/A–18s. We have some challenges in our depot maintenance. Some of that was exacerbated by the loss of skilled craftsmen and the loss of money during the sequestration, 3 years ago. We have a continued rebound there.

The plan to regenerate F–18 capability is behind schedule on a monthly and on an annual basis. We continue to chip away at that, sir.

It is a mix of three component pieces. It's the ability to get the aircraft off the line, to get it in to be ready to maintain, which means you're going to strip away a frame that pilots would be training on. It's also the need to have the wrench-turner, be it a uniformed military or a civilian. Then it's the money available to continue to do the maintenance and to bring that offline.

We have to sync all of those up together, sir. We have a demand signal for—particularly for our F–18s right now, until we get the F–35s online. We're flying the wings literally off the F–18s right now. That is probably the biggest pacing item for us, sir. The depth-to-dwell is below 1-to-2. We continue to source them to two of our Special-Purpose Marine Air-Ground Task Forces [MAGTFs] in support of CENTCOM [Central Command] and AFRICOM [African Command]. There's a demand signal, and we're trying to meet the "fight tonight" capability, as I said. We're doing it at the expense of both the sustainment and the modernization, Senator.

Senator KAINE. Can I follow up on the point you made about the Special Purpose MAGTFs? You've got two, and they're assuming a greater role in crisis response in the regions that you discuss. I understand the Marine Corps is looking at even increasing forward presence to ensure that one-third of Active operating forces are immediately available for use for contingencies. How do you, kind of, position forward and at the same time deal with some of the home base readiness issues that the marines are experiencing?

General PAXTON. Thanks, Senator Kaine.

We are committed, as you know and the committee knows, I'm aware, and as I said in testimony, to answer the "fight tonight" requirements from the geographic combatant commanders, which is why we have the two Air-Ground Task Forces forward-deployed. We have, in the last year, as we did our global force allocation—we have had to reduce the density of aircraft available to those Special Purpose MAGTFs, in at least one case. That's because we

reached the point where we had to change our depth-to-dwell model. We had to change our maintenance. We had to actually induct aircraft back into the line, back here in the States, and we had to keep sufficient aircraft at home to train pilots. We're answering the geographic combatant commander's demand signal, but we have asked him to reduce that demand signal a little bit. We had to strike that balance, again, between "operate tonight" and "ready for tomorrow," Senator.

Senator KAINE. General Goldfein, I want to move over and ask about an Air Force issue that we talk about a lot in the committee, but I didn't fully grasp, til recently, that it was not a platform issue; it was really kind of a readiness issue. This is—we debate, on the committee, about A–10 versus F–35. We have been. If dollars were no object, we might not be having the debate. But, dollars are an object, and so there's been kind of a tug-o-war of this.

I thought that was a—essentially, a debate about the viability or the effectiveness of one platform versus another. But, what I find, for example, as I've dug into it more, the Air Force was intending, in the phase-down of the A–10, to take the A–10 maintainers and move them over and have them become F–35 maintainers. If we don't phase down the A–10, suddenly there's about 4,000 maintainers that you need for the F–35 that you don't have. This is really a readiness question on the maintenance side. How do you deal with that maintenance gap on the F–35 side? Because that's a sizable crew of people that you need to make sure the F–35 are effective.

General GOLDFEIN. Yes, sir. Thanks for the question.

Because we actually are all in the same boat on this one, in that we don't have excess capacity to bring on new while we maintain the old.

Senator KAINE. Yeah.

General GOLDFEIN. Actually, I could not give you a better example of the impacts of sequestration than the A–10 discussion we're having, because it came directly out of the sequestration discussion. I mean, in 2015, we were given an $8 billion math problem to solve under the sequestered budget. In 2013, just as the Chairwoman said in the opening comments, you know, a lot of the—the world was relatively stable as we looked to the forward. We were coming—we were out of Iraq, we were coming out of Afghanistan, Russia was not active. We had a relatively stable environment we were looking forward to. We had to solve an $8 billion math problem.

We went to the combatant commanders and said, "Of those missions that we do for the Nation and for your combatant commands, we have got to find an—a weapon system that we can take offline to be able to harvest the dollars to pay the bill and the manpower to bring on the new weapon system. Here are the options. Take out the B–1, take out the F–15E, take out 400 F–16s, or take out the A–10."

As you know from working budgets, the easy answers are gone pretty early in the discussion, and what you're left with is a series of bad options, and you try to pick the least bad one, which was the A–10. We have 100-percent concurrence with the combatant commanders that, given those options, the A–10 is the weapon sys-

tem that we would take offline and retire, because we do have a mitigation—not a one-for-one replacement, not a platform that can step in for the A–10, but jointly across all of our aviation capabilities, we have a way to mitigate the shortfall of the A–10. When the combatant commanders looked at that, versus other options, they chose that.

We are going through a number of steps to be able to mitigate that. When we came back to Congress and delayed the retirement, it was based on the reality that the world changed since our assumptions were made.

Senator KAINE. This is not to really get back into—members of the committee have strong feelings about A–10 versus F–35——

General GOLDFEIN. Sir.

Senator KAINE. I'm actually not interested in arguing that right now. But, the thing that I hadn't fully grasped is, by keeping the A–10 alive, we had made a decision to move the maintainers over, and so now we have a maintenance gap on the F–35 side, which is pretty critical. That's a readiness question.

General GOLDFEIN. Sir.

Senator KAINE [presiding]. These issues do tie together tightly.

My time is up. Senator Inhofe is next.

Senator INHOFE. Okay, thank you, Senator Kaine.

I think one thing we're getting out of this, so far, is that General Hawk Carlyle was right when he was talking about, "We have more mission than money, manpower, and time." That refers not just to the Air Force, but across the board. I know that's the situation we're in right now. It's very disturbing.

Secretary James and General Walsh were before this committee last—I think it was 2 weeks ago—and they said, prior to 1992, the Air Force procured an average of 200 fighter aircraft per year. In the two and a half decades since, curtailed modernization has resulted in procurement of less than an average of 25 fighters yearly. Now, that's—General Goldfein, that is pretty disturbing. How are we—did we have too many before? Explain how we got to this situation.

General GOLDFEIN. Yes, sir, thanks.

Over the last 15 years, while the Nation has been very singularly focused, in many ways, on the violent extremism threat and fight in the Middle East, each service has made strategic trades, based on demand signals, on what we provide to the joint team. For the Air Force, the demand signal has been primarily in space, cyber, ISR [intelligence, surveillance, reconnaissance], and the nuclear enterprise. You'll see in our budget that we invest in those. When you're trying to balance against those, there's only two places you go to balance, and that's people and conventional airpower.

Senator INHOFE. Yeah. We're talking about fighter squadrons there.

General GOLDFEIN. Sir.

Senator INHOFE. I can remember, not too many years ago, I think they, through necessity, did away with 17—or stood down 17 fighter squadrons. I remember, at the time, we were making statements, and I did, before the general committee, that it costs more to reinstate those than anything that is saved in that short period

of time by standing down those fighter squads. Do you agree with that?

General GOLDFEIN. Yes, sir, I do.

Senator INHOFE. We had the actual figures of that, and it's pretty astounding, that——

General GOLDFEIN. Yes, sir.

Senator INHOFE. Then, talking—and I would also mention the Chairman of the committee, Senator Ayotte, talked about what's happening over there, what our competition is doing. As we find ourselves in a situation where we are downgrading, China and Russia are not standing still. I see this gap closing. The J–20—I guess they were the—yeah, J–20 in China, and the T-50 in Russia. They are—they're closing in on us. China's J–20, it's my understanding, would be a real competitor to our F–35 and F–22. We have those problems.

When you talk about failing—and we all said that it's modernization that is paying the bill for a lot of this stuff. We're not preparing for the future. I can remember—and I'd direct this at our Army and our Marine Vices. Are you aware that my last year on the House Armed Services Committee, before I came to the Senate, we had people testifying that, in 10 years, we would no longer need ground troops? Remember that? Yeah. Well, I guess what I'm saying is, when you're talking about modernization, you have two problems. One, modernizing equipment. The other is on your mission—modernize your mission. If we were to sit here right now—you guys are all smart—and determine what are our needs going to be 10 years from today, you're going to be wrong. The only way, if we are going to try to reinstate our position of superiority, is to go ahead and do what's necessary in all the possible scenarios that might be taking place in—10 years from now, or 20 years from now. You have to stop. You can't wait 8 years and then determine what to do.

I would hope that you'd consider that to be a major problem that we need to address, in that we don't know what our needs are going to be. The American people out there, they don't know that we don't already have—aren't already superior in every possible scenario, put together. I think that's something——

Now, I don't disagree with Senator Kaine, although let's keep in mind that, when we were testifying—I think it was General Walsh or—but one of them said that, in 1964, we spent, total—52 percent of our total expenditures on defense. Today it's 16. Now, when you read further, you do find the culprit in there is in the entitlements that we're going to have to address. I would agree that we're going to have to get there. But, nonetheless, whether it's entitlements' fault or anybody else's, we're still down there to a small fraction of what we considered to be the priorities to defend America at that time.

Did we find—Mr.—General Goldfein, when we talked about the—we brought this up when we had your boss in here and talked about the fact that we, today, have 33—he said 34 at that time; this was just last week—fighter squadrons into our first conflict since Vietnam, or today. But, in 1991, we had 134 combat-coded fighter squadrons. Would you say that we—again, asking you kind of the same question that we did before—did we have too many at

that time? How can we justify this kind of degrading, in terms of the numbers of fighter squadrons?

General GOLDFEIN. Yeah, thanks, sir.

I would say that we did not have too many. We had, actually, what we needed to go. That was a result of the vision of the Vietnam generation who built our force back after Vietnam and gave us the force we needed when we wanted to go in.

Our challenge today is that for an Air Force—and we all build and sustain readiness a little bit differently, but I'll tell you, for an Air Force, when we say that we require the force to be—80 percent of the force to be ready, it's because if you take a look at the timelines of the operational plans that the combatant commanders rely—approximately 80 percent of the Air Force is forward within 120 days. We have to have that capacity to be able to meet the defense strategic guidance.

Senator INHOFE. Yeah. Okay.

Lastly, in this morning's—one of the publications, they kind of relived what happened to our Harrier that caught fire, here, just the other day. I think it was the—yeah, it was General Neller said that he raised the question as to whether readiness shortfalls had contributed to what has become a 5-year high in aviation mishap rate. That's really astonishing. A 5-year—it affects all you guys—a 5-year high. What—now that you've had some time to think about it, what do you think about that, in terms of, What could have been the cause of the Harrier with the fire accident that—just a few days ago?

General PAXTON. Yeah, thank you, Senator Inhofe.

We are concerned about the safety of the aircraft. We're not concerned—let me rephrase that, sir. That's incorrect.

We're not concerned about the safety of the aircraft. The aircraft are well-designed, well-built, well-maintained, and well-flown by great pilots.

Senator INHOFE. Been around, though, since 1985.

General PAXTON. But, we are concerned about an increasing number of aircraft mishaps and accidents. We are—although that particular one is under investigation, Senator, we're looking to see if there's a linear correlation. We know, historically, that if you don't have the money and you don't have the parts and you don't have the maintenance, then you fly less.

Senator INHOFE. Sure.

General PAXTON. We call it "sets and reps." You need set and repetitions to keep proficiency up there. We truly believe that if you fly less and maintain slower, there's a higher likelihood of accidents. We're worried.

Senator INHOFE. Your schedule now is—I think that's—they're ultimately going to be replaced by the B–35Bs. Is that correct? The date for ultimate—for ultimately replacing all of them would be 2025. Am I—is that information correct?

General PAXTON. That is correct, Senator.

Senator INHOFE. Do we have enough Harriers to last that long?

General PAXTON. We have sufficient inventory, sir. We have to keep up the maintenance on them.

Senator INHOFE. Okay.

General PAXTON. Absolutely.

Senator INHOFE. Thank you.

Thank you, Mr. Chairman. Madam Chairman, not Mr. Chairman.

Senator AYOTTE [presiding]. Thank you, Senator Inhofe.

I'd like to call on Senator Heinrich.

Senator HEINRICH. Thank you, Madam Chair.

General Goldfein, Senator Kaine brought up the issue of—with keeping the A–10s flying, the maintainer challenges that we have. That's something that's been impacting my home State of New Mexico, as well. Some of that gap has been filled with contractors. Why haven't we looked at using the Air National Guard to help fill that maintainers gap?

General GOLDFEIN. Sir, actually, we have. It's—what's an interesting part of your Air Force today is that you can jump on a C–17, walk up into the cockpit and ask, "Okay, who's Guard, who's Active, who's Reserve," and all three hands will go up. We're that integrated.

We actually have used, and are continuing to use, the Air National Guard as we look at resolving the maintenance challenges we have as we, right now, maintain the A–10 and bring on the F–35. It's a complete one-Air Force solution that we're going down.

You mentioned contractors. What we've done is, we've actually looked at those locations where squadrons don't deploy, and we're using contractors. That's where you see the replacement training units and the aggressor squadrons. But, that's a short-term fill, because eventually we've got to get back into blue-suit maintenance for those units.

Senator HEINRICH. Yeah. I would just encourage you along those lines. I think that's a really good role for our Air Guard. As we work through those challenges, I think that's one of the solutions that I'm certainly most attracted to.

I wanted to bring up something that came up here when we did the NDAA [National Defense Authorization Act] last year. As you know, this committee provided a pay incentive specifically to encourage RPA [remotely piloted aircraft] pilots to enter into and stay in that field. In the end, the Air Force decided against providing that incentive pay. The justification or the rationalization for that was to main parity across Air Force platforms, but it ignores the underlying issue, which is the Air Force RPA pilots are leaving the service in high numbers, as you know, and creating very serious training challenges. It's—it seems to be a pretty insatiable demand right now for those capabilities overseas. Some have said that the RPA is literally—community—is literally at a breaking point. That's why I think you saw this committee authorize that.

If RPA pilots fly more hours—and I've seen estimates around 900 per year—shouldn't their bonus structure reflect that increased demand?

General GOLDFEIN. Yes, sir, thanks.

The reality of the RPA—remotely powered aircraft—business in ISR is, it's been on an exponential growth really ever since 2001, when we had zero caps, then we grew up to—all the way to 65 caps. What happened along the way is, we continued to try to mature that weapon system. A mature weapon system, as we define it, is enough individuals in the weapon system to do the primary

mission, plus go to school, plus do staff, plus serve as interns here, and do all those things that we can communicate that portion of the Air Force across the enterprise.

What's happened in the business of RPA is that every time we try to stabilize, three more caps were added. The question came to the Air Force, "Can you?" Our answer was always, "Yes, if." "Yes, if—yes, we can add three more caps if we delay maturing the weapon system." Everyone we had in the weapon system was doing mission.

This year is the first time we've actually had a chance to stabilize. We've got—we've got 140 initiatives now that we're actually able to execute, that have been on the books for years, actually, that can now improve, not only the manning we need to be able to get the weapon system to be mature, but also improve the quality of life for these folks that you mentioned. One of those is the pay that you authorized.

When we looked at the critically—the, you know, low-density, high-demand weapon systems across the Air Force, personnel recovery, you know, some of our other weapon systems, we want to make sure that we target all of them. While it's a—it may come across as an issue of fairness and equity; it's really a matter of making sure that we target. We're doing that the first year, with 25,000. We're going to come back to you this next year and, as we've taken a look at the impact, and perhaps come back for the full 35.

Senator HEINRICH. Can you talk a little about, aside from the bonus issue, what steps you're taking just to recruit and train more quickly?

General GOLDFEIN. Yes, sir.

First, the most important thing we've done is, we've increased our instructor pilot force that you've seen at Holloman——

Senator HEINRICH. Right.

General GOLDFEIN.—up to 80 percent, where we were sitting about——

Senator HEINRICH. Yeah.

General GOLDFEIN.—60 percent. That's really——

Senator HEINRICH. Huge change. It's——

General GOLDFEIN.—increased its throughput.

Senator HEINRICH.—very——

General GOLDFEIN. That's going to get us that 10-to-1 crew ratio that we've got to build to mature the weapon system.

The other thing we're doing is, we're actually working to add a squadron to each wing that we have. Because the way we are operating now is, every squadron is in full combat operations. There's no relief. We want to add another squadron so that you have one squadron that's in training, the one squadron that's doing, you know, all of their additional work that they have to do, while the other two are engaged in combat operations. You rotate through the wing the way we do in other mature weapon systems.

The other thing we're looking to do is add a base. We'll do that transparently through the basing process so that we don't have the option of essentially going between Holloman and Creech as the only two locations for that enterprise.

Senator HEINRICH. Great. I appreciate your attention to that.

General Allyn, the National Commission of the Army appeared to take a pretty pragmatic approach when considering the tradeoffs that you've talked about between readiness and modernization. The Commission recognized the need to preserve the Army's level of readiness, but also provided a pretty scathing critique of the lack of investment for next-generation Army platforms. The Commission concluded that the consequences for modernization were regrettable, and warned that the long-term risk to force and mission would be significant. What are your thoughts on what needs to be done differently, in terms of the acquisition or the requirements process, so that the Army can pursue the testing, evaluation, and procurement of those next-generation weapon system, as well as investing in the ranges to actually test them?

General ALLYN. Thank you, Senator.

I mean, you put your finger on the issue that affects all of our services, and that is this struggle that we have to maintain balance between delivering the force that's required today while building the force for the future and taking care of our people. What you see us having to do is make a very hard decision and a poor choice, but the best choice we have within the resources that we have. While acquisition reform is essential to make sure that we get the best value for every dollar that we put into procurement and acquisition efforts, the problem in delivering capability is not because of acquisition reform, it's under-funding. All right? We have eroded our procurement——

Senator HEINRICH. You will get——

General ALLYN.—funding by 35 percent.

Senator HEINRICH.—I think, no argument from us on that fact. I think, as you heard from Senator Kaine, in particular, that, until we address sequestration, I don't think any of us are under the misinterpretation that we're going to be able to fix the gross overall problem.

General ALLYN. But, we are absolutely committed, Senator, to taking not only actions within the service to address acquisition reform, because it's absolutely vital that we deliver the right equipment at the right time for the best value for the Nation, and we're committed to that, but we also have got to put more funding into future readiness, because we're mortgaging it right now.

Senator HEINRICH. Thank you.

Senator AYOTTE. Senator Ernst.

Senator ERNST. Thank you, Madam Chair.

Thank you, ma'am, gentlemen, for your great years of service.

General Paxton, especially to you, thank you so much for your many, many years of service. I think General Allyn would also thank you for your service, as well.

General ALLYN. For the record, he wasn't there 100 years ago when the first ACMC [Assistant Commandant of the Marine Corps] went on duty, contrary to popular opinion.

[Laughter.]

Senator AYOTTE. He came right after that?

[Laughter.]

Senator ERNST. You have a good friend in General Allyn, sir.

General Allyn, I'd like to start with you and thank you for your hospitality yesterday, as well. I appreciate your time and effort in these matters.

But, over the past year, we've had a number of combatant commanders that have told us they are either lacking capabilities or they're not—just barely able to adequately meet demands. I would like to hear from you how comfortable you are with the Army's ability to respond to the combatant commanders' requirements currently, and then also, Do you think that you have adequate capacity to respond to the combatant commander current requirements as well as if we have an unforeseen crisis that comes up in the near future? If you could expand on that, please.

General ALLYN. Thank you, Senator.

Let me probably hit a target that everyone at this table is wrestling with. You've heard it from each of us, that we are absolutely committed to delivering trained and ready forces in support of our combatant commanders. That is job one for us. For the United States Army, we delivered 91 percent of what our combatant commanders asked for, in terms of known requirements, for this past year. That sounds good. Ninety-one percent. That's an A in many schools across the country. But, that 9-percent gap is unacceptable to a combatant commander, and we recognize that.

In addition to that, the Army has delivered 64 percent of the emerging requirements that came out during this past year, of their total requirements. Sixty-four percent of what they asked for that was unpredicted at the beginning of the year, we delivered. Of course, the problem with that is, that came out of our surge capacity build. While we're trying to generate surge capacity for contingencies, we must continue to answer the emerging requirements that are validated by the Chairman of the Joint Chiefs and the Secretary of Defense. The end result of that is, I do not have a level of comfort that we are ready for a contingency of a major scale against our peer adversaries; and therefore, I am very uncomfortable with the trajectory of our drawdown right now, and I do believe it's time for a strategic review of, is that what is best for our Nation?

Senator ERNST. General Paxton, do you have any thoughts on that, as well? Do you have capacity?

General PAXTON. Thank you, Senator Ernst.

I know this will shock you, but my battle buddy and I are pretty aligned here, ma'am. We will continue to always meet geographic combatant commander demand signals. Even within those requirements, as General Allyn just talked about, there is a prioritization on the Joint Staff. We delude no one in knowing that Pacific Command and Central Command are resourced at a much higher capacity than AFRICOM or SOUTHCOM [U.S. Southern Command]. That is of some concern, certainly to those two geographic combatant commanders, but also to the services.

In the case of the Marine Corps, when we say "fight tonight," we have an equally high pride factor and ability factor to source "fight tonight" forces. As you just heard me explain to Senator Kaine, we've had to already chip into that by saying, "We're going to resource you and send it over, but you're not going to get quite as many aircraft in the next round of doing that." We do all of that

at the expense of our bench strength. We have "tonight" forces, which are ready, "tomorrow night," which is ready, then everything else is at some degraded state of readiness, whether it's personnel, training, leadership, equipment. That is not only mortgaging the future, but that's mortgaging the surge capability to fight an operations plan against a known adversary, where we're banking to have good indications and warning, adequate lift, and right time. I worry about the capability and the capacity to win in a major fight somewhere else right now.

Senator ERNST. Okay. Very good. Thank you, General Allyn and General Paxton.

General Paxton, if we could just continue the conversation about personnel readiness. You—the Marines are a small force already. Yet, you continue to downsize. As we look at the pool of ready applicants that are coming into the Marine Corps, we really do want those quality individuals. Can you talk a little bit about how the Marine Corps is facing these challenges in recruiting and retention? Also, how do you deal with the challenges of keeping qualified senior leadership in your ranks?

General PAXTON. Yeah, thank you very much, Senator Ernst. Two great questions.

All the services, I think, are vitally interested in quality applicants. The amount of high-quality young men and young women in the United States, that pool continues to dwindle when you look at physical characteristics, you look at academic performance, you look at morals, and things like that. We continue to have a challenge to identify interested and propensed individuals from a smaller and smaller pool.

In the particular case of the Marine Corps, we are not having a problem now at all. We have not had a problem for many, many years attracting high-quality individuals, officer and enlisted, regular and Reserve, to come into the Marine Corps. We're very, very proud of our recruiters, our recruiting force, our recruit trainers, and our entry-level pipeline. We do not have a problem with reenlisting officer and enlisted first-term, too.

The challenge we see, as you said, to continue to maintain a high-quality force over time. There are certain leading indicators in our second-term reenlistments. Forces—there is a high demand signal for them to train a lot. Forces where we need—we have the authorities for bonuses, but we may not have the money for the bonuses. There's a demand signal out in the civilian economy.

I think all the services right now are wrestling with the cyberworld. We know that we need better defensive cyber capabilities. We know that, at some type, we need offensive cyber capabilities. It takes a long time to train those individuals. Once you train them and you get them the security clearance, they are highly marketable, and the civilian establishment is making money off of us, because we qualify them, we train them, we give them security clearances, and then we need to keep them around. Cyber operators, special operators, there's a handful of folks—pilots—I think all four services will wrestle with the long-term retention of those critical skills, Senator.

Senator ERNST. Thank you very much.

I just want to echo that. I know it's true in the Army, as well; I'm sure in the other services. I struggled, as a battalion commander, once we found those soldiers that had those special skills, keeping them employed within our units without losing them to other civilian occupations.

Thank you very much, ma'am, gentlemen. Thank you for your time here today. Appreciate it.

Thank you, Madam Chair.

Senator AYOTTE. Thank you, Senator Ernst.

Senator Hirono.

Senator HIRONO. Thank you, Madam Chair.

Thank all of you for being here.

General Goldfein, adversary air is an important part of keeping readiness levels of our pilots at their desired levels. Because there are no convenient aggressor aircraft available in a nearby State, the Hawaii Air National Guard's F–22s are forced to conduct exercises against each other, which eats up very valuable and expensive airtime of these advanced fighter aircraft. I've introduced legislation in the past encouraging the Air Force to look at a wider range of solutions to this problem. For Hickam, are you considering having—basing some aircraft that can be used as aggressors, looking at commercial aggressor services, for example? Can you tell me where the Air Force is in trying to solve this problem?

General GOLDFEIN. Yes, ma'am.

In a—couple of jobs ago, I served as the A3, the Director of Operations for a combat command, and we built a fleet of T-38As, much older aircraft that were no longer in use in Training Command. We currently use those in three locations in the United States, in the CONUS [continental U.S.], for training the F–22, for exactly what you're talking about, because the cost per flying hour is much less and we're able to replicate at least a portion of the threat when we fly these against them.

Within our current top-line, we continue to look at commercial alternatives while we can contract some of those. We do, in some our exercise, already do that. The services do, as well. Right now, I know of no initiative that we're looking at specifically for Hawaii, but I'll go back and ask and get back to you.

[The information referred to follows:]

We are pursuing a range of options to satisfy the Hawaii F–22 Raptor Adversary Air training requirements to include exercises, partnerships with the contracting organization at Nellis Air Force Base, Nevada, and long term solutions for stationing adversary air assets in Hawaii.

Currently, Sentry Aloha remains the sole and best opportunity to meet Hawaii F–22 adversary air training. Sentry Aloha is a large-scale, peer-to-peer fighter exercise hosted at Joint Base Pearl Harbor-Hickam. The exercise allows Hawaii F–22s to accomplish valuable Dissimilar Air Combat Training (DACT) requirements by bringing Air National Guard and Active Duty flying units to Hawaii for exercises. It is a mutually beneficial enterprise, as visiting units conduct valuable force integration and DACT training in world-class airspace and year-long favorable weather conditions. The National Guard Bureau supports Sentry Aloha with both funding and manpower to run the DACT events.

We are also working with the 99th Contracting Squadron at Nellis Air Force Base, Nevada on avenues to access their contract for adversary air, and believe this will be a viable option under Phase II of their contract.

Finally, the T–38 has been researched as a possible adversary air solution for Hawaii F–22s, and was deemed financially unviable by Air Combat Command. Additionally, there are currently no available T–38 assets. We continue to explore options for stationing adversary air assets in Hawaii should assets become available.

Senator HIRONO. Can you take a look at that?

General GOLDFEIN. Yes, ma'am.

Senator HIRONO. Because if you can locate some of these T-38s in Hickam, for example, that would definitely release the F–22s from that particular part of training.

Admiral Howard, I was happy to see, in your written testimony, that you remain committed to improving the conditions of our Navy shipyards, of which, of course, Pearl Harbor Naval Shipyard is a large facility. Can you elaborate on the importance of maintaining our shipyards, including, of course, Pearl Harbor Naval Shipyard? Do you believe that the funding allocated in the fiscal year 2017 is adequate to meet your needs in this area? I know that you've testified that, you know, we're really putting aside—postponing the needed repairs and upgrades of all of our facilities. That includes the shipyard facilities. But, can you just elaborate a bit more on whether the fiscal year 2017 budget meets your commitment to maintaining our shipyards?

Admiral HOWARD. Ma'am, at this point, the budget does maintain our commitment to the shipyards. Overall, the amount of money we've put into facility sustainment across all of our installations is less, and our MILCON [military construction] is less. But, we understand the importance of our shipyards. I mean, those are the incubators and the lifeblood for us to produce ships. We've exceeded a 6 percent investment the last few years into the shipyards. We're probably going to hit about 8.1 percent investment of upgrades in the shipyards. Then, for 2017, we're at 7.1 percent investment, continuing to upgrade or modernize the infrastructure. In a budget where we have fewer dollars allocated to infrastructure support, we prioritize the shipyards to make sure that they continue to provide us excellent work.

Senator HIRONO. I think that, as you focus on issues such as the productivity at our shipyards—and, at one time, that was an issue at Pearl Harbor, and I would think probably at the other shipyards—modernization and just keeping the equipment up to par, all of that, totally impacts productivity. Also the fact that our ships are out longer when they come back to—for repair and maintenance, it takes our workers longer. That recognition should be reflected in what you consider productivity numbers.

Another question for General Paxton. You mentioned, in your written testimony, that the number of amphibious warship vessels required to meet the demands of the combatant commanders exceeds 50 vessels. Furthermore, while the minimum requirement is 38 vessels, you currently only have 30 in your inventory. That's page 16 of your testimony. Can you elaborate on what efforts and duties you are unable to perform as a result of this inadequate number of vessels? Does the Marine Corps have a current plan to increase the number of vessels to fulfill necessary requirements and missions?

General PAXTON. Thanks for that question, Senator Hirono.

Work very closely with my shipmate on my right here, because this is a joint problem. The VCNO alluded, earlier in her statements, about the overall size of the Navy. Then, secondly, she also indicated the pressures of funding the *Ohio* replacement program within the Department of the Navy top-line, because this is what

actually pressurizes all of the accounts, not only the shipbuilding account, which affects amphibs for us, but service combatants, destroyers, carriers, everything for the Navy, but it also pressurizes our joint aviation top-line, too. It—because it's just a big bill.

To your specific two questions, Senator. Number one is, the 50 and the 38 are measured against two different metrics. Of course, the 50, which both General Dunford and Admiral Greenert testified to last year, reflects the steady-state demand signal around the world if we were to answer all of those combatant commander demands. The 38 reflects the war plans and if we had the requirement to take two marine expeditionary brigades and move them simultaneously to two major conflicts. Those are the metrics that we measure against. The Navy-Marine team agreed, several years ago, that if the funding was available, if the maintenance of the ships was available, we could handle 34 amphibious ships, provided they were surge-ready to get to the fight. As we both know, we're at 30 today. We have not been above 30 for the last 11 years, since 2006. We are interested in building more amphibs, given the fiscal constraints that the Department operates under. Right now, we have, thanks to the good offices of the Congress, the ability to build a 12th LPD, and we have a plan to take the 12th LPD and move it into the LXR, a common hull form. We have a plan to get better, ma'am, but it's contingent on the money.

Senator HIRONO. Everything is contingent on the money. We start, first and foremost, by lifting the threat of sequester, going forward.

Considering that all of—everyone who comes to testify says, "Get rid of sequester," and you notice we haven't done it yet. I would say that that should be a top priority for our committees and our subcommittees.

General Allyn, you mentioned, in your written testimony—oh, I'm running out of time.

Madam Chair, I—perhaps I'll submit some of these questions for the record.

Thank you.

Senator AYOTTE. Thank you, Senator Hirono.

Senator Shaheen.

Senator SHAHEEN. Thank you.

Thank you, to each of you, for testifying today and for what you do every day to ensure the security of this country and for your service to America.

I would like to start talking about energy in the upcoming budget, because I am very interested in hearing about the efforts to continue to leverage alternative energy use and energy efficiency. I think there is a perception in some quarters that this is being done in the military because people are being told to "go green." Actually, I think it's more about our combat effectiveness and how we address our vulnerabilities because of our dependence on energy for so much of what we do and how we can be more effective using that energy. I'm sure that everybody here is very aware of the impact in Afghanistan and other conflicts with needing to continually convoy energy use—or oil and other resources for energy use.

Can you all update me on what you're thinking as you're looking at this upcoming budget, and where you are with energy use?

General ALLYN. I'll go ahead and start, give my teammates a chance to reflect.

I'll give you two examples, Senator Shaheen, where this is playing out exactly as you described. We did a significant amount of work to reduce energy expenditure on our forward operating bases in Afghanistan. On those bases where we were able to put energy-efficient generators to operate all of our facilities, we were able to reduce monthly fuel convoys from five to two. Every convoy that stays off the battlefield is one less target in a very IED [improvised explosive devices]-rich environment. It's about, actually, force protection as much as it is about saving fuel expenditure and reducing weight for what has to be brought into the theater.

In terms of what we're doing for future warfighting development at our NIE [network integration evaluation] exercises out in Fort Bliss, Texas, and White Sands Missile Range, New Mexico, we are assessing smart technologies to reduce the number of generators it takes to run our mission command centers, particularly for our brigade and our battalion task force—tactical operations centers. This does many things for us. Number one, it reduces the signature for these mission command nodes on the battlefield. Number two, it makes these entities much more expeditionary. We can reduce from multiple airframes to bring them into a combat environment, to a couple of airframes. That's substantial over the—a major conflict, in terms of strategic lift requirement reduction for the United States Air Force and the United States Navy.

We have already seen huge gains, in terms of smart power generation and onboard power generation, where many of our medium tactical vehicles, and now some of our—even our small tactical vehicles, will have power generation capacity that can be outported to run mission command systems and reduce the need to even bring trailers and fuel haulers and generators. It's——

Senator SHAHEEN. And——

General ALLYN.—it's got great long-term effects.

Senator SHAHEEN. Can you speak to the importance of that, in terms of readiness for——

General ALLYN. Well, in terms of readiness for the combatant commander, if I can deliver a brigade combat team with three or four less C–17s, he's able to use those aircraft to bring additional capability that he needs. Because it's all about—in a no-notice fight, every single piece of equipment is prioritized. If you reduce equipment, you enable more capacity for a smaller consumption of strategic lift. That is absolutely critical to us.

Senator SHAHEEN. Admiral Howard?

Admiral HOWARD. Senator, thank you for the question.

For us, energy independence is directly tied to our warfighting effectiveness. The Navy has to be completely self-sufficient at sea. We carry all the fuel for our conventional ships, and then we carry the fuel for the aircraft. The more efficient we use fuel at sea means we can stay on station longer, it means we have to go alongside another ship less times. Every time you're alongside another ship to receive fuel, you're not doing your primary mission, whatever it is.

Then, for us, I once heard a admiral say, years ago, a captain of a ship is least important when the ship is in port. Mobility is in-

trinsic to who we are as a Navy. But, then, also for us, there are security issues that you're also most vulnerable when you're in port. Speed is life. If you're static, that's when you're most likely to be a target. An ability to be energy independent of host nations is important to our warfighting effectiveness.

For us, we've been doing different things. We've been looking at our actual propulsion plans for new design, making sure we have hybrid electric drive. We're backfitting a couple of our destroyers with hybrid electric drive. Then, when you look at our shore infrastructure, when you look at critical infrastructure and utilities, it is to our benefit to be energy independent as much as we can, even stateside.

Then, in the end, it helps us be good stewards of the taxpayers' money. If we are not paying high utility bills to power a ship that's pier-side stateside, that's better use of that dollar to something else.

Thank you for the question, Senator.

Senator SHAHEEN. Thank you.

General, either of you like to comment, as well?

General PAXTON. Very quickly. Thank you, Senator Shaheen.

Of course, being marines, we're partway between the Army and the Navy, here. If I could give you just two more examples, though, of the benefits of this.

General Allyn talked about reducing the number of generators, or the size of the generators. When you talk about your core marines being expeditionary, that reduces one of the five fingerprints of lift. When you look at that cubic foot, square foot available space on the ships, then we take less. That means we can put more on the ship, so we become more agile and mobile, out moving around the seaspace and the battlespace.

The second one that General Allyn alluded to was in terms of fuel consumption, too. As you know, with our O&M [operations and maintenance] dollars, we pay to train. We now have the capability to meter vehicles, and you can figure out at what point the idling is no good and it's time to shut it down, and the fuel consumption is actually better then, and you figure out when you start it back up, as opposed to having a marine or a soldier let it idle too long. That saves money, which allows us to train longer and get more bang for the buck out of the training dollar.

Thank you, ma'am.

Senator SHAHEEN. Perhaps you should share that information with the vehicle fleets that the government maintains, because—the rest of government—because I think that's—we have a—awful lot of idling vehicles out front.

General? Just to finish up.

General GOLDFEIN. Ma'am, very quickly. I'll just give you one example.

In the business of remotely piloted aircraft intelligence, you've got to simultaneously have access to assured energy for the aircraft that are flying overhead that bounce off the satellite to go back to command and control, that go into the process exploitation dissemination. Part of what we're working with, with an energy task force, is to ensure that we have uninterrupted access to that energy and electricity so we don't have mission failure, which impacts readi-

ness, based on vulnerability to cyberattack. That's where we're putting a lot of our effort.

Senator SHAHEEN. Thank you.

Senator AYOTTE. Thank you, Senator Shaheen.

Admiral Howard, I wanted to follow up an issue that you and I had talked about in my office, but one of the things that the workers at the Portsmouth Naval Shipyard do is, they're often deployed to share their expertise at other shipyards to help make sure that we've got good maintenance and we're all working together. One of the issues that we put in the 2016 NDAA was a concern that the new long-term TDY [temporary duty] policy may be discouraging excellent, excellent workers from going to other shipyards because of the cost of it and also, you know, putting a burden on them that doesn't allow them to stay similarly situated if they had stayed homeside. This is something that I'm worried about—just worried about, because I—we want to share our expertise. Our shipyard workers do a great job with this. I know Admiral Hilarides has raised some issues about this, as well. I just wanted to say, is this something that you can look at to make sure that these concerns are addressed?

Admiral HOWARD. Yes, ma'am, absolutely.

Admiral Hilarides' concerns have now reached the Department of Navy secretariat, and then we'll be looking more deeply into it and forwarding a recommendation to OSD [Office of the Secretary of Defense].

There's a couple more aspects I think we need to think about. One, the policy was created to help save money——

Senator AYOTTE. Right.

Admiral HOWARD.—and to help all of us be good stewards of the taxpayers' money. In the end, unless we have volunteers, we can only compel shipyard workers to spend a certain amount of time TAD [temporary additional duty], so we may end up—as they reach the end of that 4-week cycle, we may have more turnover than we like. Then we end up——

Senator AYOTTE. Would cost us more money, right?

Admiral HOWARD. It ends up—in the end, the policy may be costing us more money. We are working through to get those details with NAVSEA [Naval Sea Systems Command]. Obviously, a policy that had exactly the opposite effect is not one we should stay committed to.

But, there's another principle here that we need to think about. One is the commitment to these artisans and their skillsets——

Senator AYOTTE. Right.

Admiral HOWARD.—and that, as a government, we should be providing just compensation to our people. If it's true that, based off the per diem rates and then the actuality of the functioning of how we have these people working, they are paying money out of their pocket, then that sort of violates many principles of——

Senator AYOTTE. Right.

Admiral HOWARD.—leadership and government. We are working with NAVSEA to get to the facts of what's going on, and then we can make a good recommendation to OSD.

Senator AYOTTE. Well, we really appreciate your consideration and really careful view of this, because—I just want to say, for the

shipyard workers at the Portsmouth Naval Shipyard, I know they want to go and help the other shipyards. We just want to make sure that they're treated fairly and are able to do that. I appreciate your looking at this policy. Thank you.

General Goldfein, I wanted to ask you, How are the A–10s performing in—against ISIL? The Secretary of Defense has said they've been performing superbly. How are they doing?

General GOLDFEIN. Superbly, yes, ma'am. I would align with that.

Senator AYOTTE. Okay, appreciate it.

I wanted to follow up—I—on the maintenance issue that was raised earlier. The Air Force told Congress that it had had to place A–10s on XJ or set-aside status to free up maintenance personnel moved to the F–35. I think this may have been raised earlier in the hearing. You've discussed the maintenance shortfall in your prepared testimony. Yet, my office has learned that at least five A–10 crew chiefs from Davis-Monthan have—were not moved to the F–35, but, rather, to the Azores to conduct basic aircraft transient alert activities that can be done by any maintenance personnel. Are you aware of this? If not, can you look into it for me?

General GOLDFEIN. I'm not, and I will. Yes, ma'am.

Senator AYOTTE. I appreciate it. Because I want to make sure that, if this is the claim on the maintenance personnel, that it is—that we're maximizing and properly using the maintenance personnel. I want to know, for the record, that the Air Force has told our office previously that it couldn't use contractors to solve a short-term maintenance shortfall. But, I know, in this budget request, it will—the request will fund contractor maintenance personnel to fill gaps at select noncombat A–10, F–16, and C–130 units, following our Active Duty maintainers to transition to the F–35. I've gotten different stories on the maintenance issue. One thing I would appreciate, overall, is if you could provide my office—since the claim is that we need the A–10s maintainers to assist the F–35, I'd like to know a—what's happening with the A–10 maintenance personnel, and to have a list of the last 2 years of where they're moving and how they're performing.

[The information referred to follows:]

The Air Force has an overall shortfall of 4,000 aircraft maintainers, to include legacy and F–35 requirements. This shortfall widely impacts the experience level of maintainers as well as aircrew mission readiness levels across all Combat Air Forces (CAF) platforms. New accessions require five to seven years to become fully qualified aircraft maintainers. In addition to the F–35 Initial Operational Capability manpower requirements, there are key legacy (i.e., F–16, F–15 and A–10) maintenance manpower requirements that need to be addressed to maintain experience levels and readiness.

As a result of the conversion of 18 A–10s to Backup Aircraft Inventory (BAI) status in fiscal year 2015, the Air Force retrained 110 A–10/U–2 crew chiefs and 30 A–10/U–2 avionics technicians to F–35 units. These 140 personnel were assigned to Nellis, Hill, Eglin, Luke and Edwards Air Force Bases. Below is a breakdown of the locations they were assigned:

F–35 crew chiefs (total = 110):
Nellis—8
Hill—58
Eglin—12
Luke—26
Edwards—6

F–35 avionics (total = 30):
Nellis—3
Hill—11
Eglin—6
Luke—8
Edwards—2

Over the last 6 overseas assignment cycles (2 years), the Air Force Personnel Center assigned two 2A353E (A–10/U–2 crew chiefs) to Kadena, and one to Lajes to support A–10 Transient Alert missions for a total of three personnel. Kadena and Lajes Transient alert operations support enroute aircraft deployment requirements, including A–10s that deploy overseas, so these individuals are still working on the A–10. All of the remaining 321 2A3X3E personnel remained at A–10/U–2 units to sustain continued operations on those platforms. Note: The A–10 and U–2 share the same Air Force Specialty Code (AFSC) at the 3/5-level.

As for 2A3X4A (A–10/U–2 avionics), no A–10 maintainers were reassigned except between A–10/U–2 units. A–10 units include: Osan, Moody, Davis-Monthan, Nellis, and Whiteman (Active Associate Unit); U–2 units include: Beale and Osan.

In response to your contract maintenance question; the Air Force could not implement contract maintenance during the fall of 2014 and move approximately 500 Active Duty maintainers to Hill AFB in 2015 in time to meet F–35 IOC requirements by August 2016. However, over the next three years, the Air Force will implement contract maintenance initiatives from 2017–2020 to support F–35 bed-down requirements until Active Duty end strength and maintenance accessions fill the 4,000 maintainer shortfall to meet Air Force manning and experience requirements. Readiness levels across the CAF are dependent on addressing total manning and experience requirements.

Senator AYOTTE. My concern about the A–10 continues to—and I think it's exemplified by the letter that I received from other TACP [Tactical Air Control Party] Association that represents roughly 1300 Active Duty, Air National Guard, and Reserve JTACs [Joint Terminal Attack Controller] and 2,000 former JTACs who have written me and said, "We believe F–15s, F–16s, and B–1s cannot replicate the CAS [close air support] capabilities of the A–10. We know from combat experience that the elimination of the A–10 before a viable replacement achieves full operational capability will cost American lives." That's been my focus from the beginning, and my concern about this particular platform.

I do also—you and I have gone round and round about this—but, I also want to follow up on the wing issue that you and I have talked about. As I understand it right now, that, under the current plan, if there's not a reprogramming request submitted for A–10 wings, that 13 A–10s will be grounded in 2018 due to the need for new enhanced wing assemblies. Part of it is, they're being used right now, right, a lot against the fight against ISIL? Is that—is my understanding correct for that? Am I right to say that, for the record, without a reprogramming request for additional action, not only the 13 retired in fiscal year 2018, the Air Force will—also told me that 28 A–10s would be grounded in 2019, 42 in 2020, and 47 in 2021. Is that true?

General GOLDFEIN. Partially, ma'am. The aircraft in 2018 are actually going to be grounded, but the—even if we were able to buy new wings, those wings won't show up until 2019, so they actually will not affect the 2018 numbers that will be grounded. Our plan right now is to take those out of the BAI [Backup Aircraft Inventory] aircraft so it won't affect, actually, those combat-coded aircrafts that we send forward to a combatant commander, so we'll manage those 10 in 2018. The wings, if, in fact, we come forward and are approved for a above-threshold reprogramming by the com-

mittees that approve that, if that's approved and the Secretary comes through with that, those wings will start showing up in 2019. That's when they'll start being refitted.

Senator AYOTTE. Well, I—and I would—as you and I have talked about, I would urge the Secretary to come forward, because obviously time is of the essence. We know that this platform is working well against ISIL. I really would appreciate the Secretary—and I know that Chairman McCain shares my concerns about this.

Thank you.

I would like to call on Senator Kaine.

Senator KAINE. Thank you.

Admiral Howard, we talked a bit in my office about an issue that's related to the workforce issue that Chairwoman Ayotte was discussing. We are going to have a shipyard workforce hearing in this subcommittee in early April, so I don't need to go into it in depth, but I just wanted to focus on it for a second.

The shipyard workforce is public shipyards who do repairs, private shipyards who do construction and repairs, and in many different locations around the country. Now we also do some significant ship repairs in foreign countries when our ships are posted there; in Spain, for example, I know at Rota we do some repairs. One of the concerns that I'm hearing from my ship-repair community, private ship-repair community in Hampton Roads, is kind of the challenge they have sort of knowing what's coming down the pike. Now, some of that is on us, Congress. Budgetary certainty is a significant generator of uncertainties. But, they also feel like they don't really know who to go to, to try to find out what the likely future schedule is. If we—if we're balancing work between public shipyards, private shipyards, and some shipyards overseas, and some of the way we balance it is, in the public shipyards, by moving people around, then the private ship-repair community often feels like they're the last ones to know, and it creates challenges with them having to staff up, layoff, some people move to other areas. Then there's a kind of a surge. We need more, and it's more difficult to staff up.

One of the issues I'd kind of like to dig into, and I would just like any general thoughts you have about, Are there points of contact that would be better for the industry to be able to kind of reach out to, to get some sense of how this work will be apportioned and allocated down the road? Again, we have to own our portion of it on the budget-certainty side, but I'd love to have you talk about that for a bit, and then we'll dig into it more in early April.

Admiral HOWARD. Senator, thank you for the opportunity.

In particular, this last year, when the issue was brought up, NAVSEA and fleet went into dialogue with the private shipyards, and one of the things that—we tend to look at the schedules in terms of producing operational ships, but then there generally is some fungibility in the schedule. They were able to work with the private yards and move the start of when some of those availabilities would be, and then that allows the private yards to get more long-term endurance, in terms of the number of workers they need to employ.

I think, one, we need to continue that dialogue with NAVSEA and the fleet and the private yards, not just in our fleet concentration areas, but, in some cases, in other areas where we more rarely use them. But, it's the same sort of thought process, allowing them to understand what our schedules are going to be and then working through so that they can more optimally support us.

Then, for us, our type commander, Vice Admiral Rowden, has started to take this on, because there is a Navy portion to this, in terms of the planning and getting to a better definitized of what the repairs need to be before we even send a proposal out for everybody to bid on. I will, right now, commit to working with the fleet, NAVSEA, and Admiral Rowden in making sure that one of them says, "I want to be the integrator of all of this," and continue this dialogue and make sure that the folks who are helping us keep our ships going are also optimized. Because, in the end, that's probably going to cost us less money. If they're not having to hire and fire, then that means the continuity will help us get to the best return on investment.

Thank you, Senator.

Senator KAINE. Thank you all for your testimony.

Senator AYOTTE. Senator Shaheen.

Senator SHAHEEN. Thank you.

I wanted to follow up on the discussion about the shipyards, because obviously, like Senator Ayotte, I share an interest in the Portsmouth Naval Shipyard. I was very pleased, Admiral Howard, to hear your commitment to the Shipyard Modernization Program, and very pleased to be see that the President put in even more than the 6-percent target in this budget. I hope that we can continue to ensure that we make the investment, the capital investment that we need to make in our shipyards, and appreciate your commitment to that.

I want to also follow up on the question that Senator Ayotte raised about the travel regulations. Because one of the things that I have heard from shipyard workers is that many of the people who are—who have been there the longest, who have the highest skills, are some of the people who find the new regulations the most difficult. When I have people say to me that, on the per diem that they get under the new regulations, that they can't afford to go out for dinner, and they—because they're working such long hours, it's really hard to cook in the facilities that they're in. I think that creates a real challenge for people. I appreciate your willingness to look at this issue and also your recognition that it's really the skills of our employees who make such a difference, and that it could have the ironic impact of actually costing us more money than saving money. Thank you. I hope you'll be willing to let us know soon what NAVSEA sees with respect to the information around what we're seeing with those travel regulations.

Admiral HOWARD. Yes, ma'am. I'll make sure we get you feedback.

Senator SHAHEEN. I wanted to ask one other question. That has to do with the 2014 NDAA that we passed that says that it's DOD policy to eliminate the fielding of service-specific combat uniforms so that we adopt and field a common combat uniform for all members of the Armed Services. Can anyone tell me what the status is

of the effort to have our Military Services working together on joint clothing and combat—joint combat uniform? Because, as we think about where are areas that we can cooperate and save money, it seems to me that this is one.

I appreciate everyone's interest in being identified as—with their branch in the military, but it seems to me, when we're talking about combat uniforms, since, before 2002, everybody wore the same combat uniforms, that it's—we should think about whether that policy should be changed. I don't know if anybody wants to comment on that.

General GOLDFEIN. Ma'am, I'll jump on that one. We meet routinely on all issues relative to, really, personnel actions, whether force of the future or women in service, all those kind of things. I won't speak for all of us, but I will tell you, this issue hasn't come up in the last 6 months, in terms of any of the dialogues we're having. However, you know, we have been operating in a single combat uniform deployed in the OCPs [Operational Camouflage Patterns], and all of us tend to wear that same uniform, and then we change the tape, you know, that actually has our service on it. We went to that, some years ago. As far as any of the dialogues we've been in, I've not—that has—topic has not come up.

General ALLYN. I'll just add one point to leverage on the—continuing to use the OCP. That's the uniform we're going to as we transition away from the Army combat uniform. We're going to the combat variant that we're using so that we save resources and don't create a new requirement. We're trying to leverage all of the contingency stocks that we have purchased to ensure that, as we go forward, we're being good stewards of the resources you provide us.

Senator SHAHEEN. General Paxton?

General PAXTON. Yeah, thanks, Senator Shaheen.

The question did come up. I don't believe it was last year. I believe it was the year before, when we discussed it. Last——

Senator SHAHEEN. Yes. 2014.

General PAXTON. Then last year, we did take it for a question in the House. I know the concern of the committee and, rightfully so, the American taxpayer is not excess money. There is a commitment among the four of us and all four services to always share our RDT&E [research, development, test, and evaluation]. If we figure out that, in a pixilated pattern, where if, in a uniform, itself, that there is a best practice there, we'll share that with each other.

The way I recall this when we left it, 2 years ago, was that we had all—we were freeze-framed in our current plan right now, and there was an obligation to continue to share that information, because I thought the sense of the committee and the sense of the Congress was not to invest further R&D [research and development] money in that. I know, in the case of the—particularly the Marine Corps, we had two uniforms that we developed, a woodland pattern and a desert pattern, that were actually developed pre-9/11, and that's what we've continued to use for the entirety of the last 14 years. I know some of the pattern that we have, even though it is trademarked and patent-righted, and it was when we did this, we share it with Special Operations units, and they strip off the Marine things and put on—as General Goldfein said, they

put on their own identification and patches like that. There is a high degree of sharing, here. I thought the commitment was not to expend R&D monies in the future without sharing best practices, ma'am.

Senator SHAHEEN. I don't know, Admiral, do you want to comment on this?

Admiral HOWARD. Ma'am, the Navy and Marine Corps have been together a long time. When we put our corpsmen in docks with the marines, as long as they pass the PFT test, they're allowed to wear the Marine Corps uniform. We've been saving money that way. We do have our own camouflage, but we have not been looking at a new camouflage uniform, so this has not come up.

Senator SHAHEEN. You think things are progressing, then, in the way that the 2014 NDAA legislation envisioned? Is that what I'm hearing everybody say?

General PAXTON. Yeah. I mean, again, Senator, it hasn't come up in 2 years. I thought we understood the legislation. We were all compliant with the paths that we were taking, and it was just an issue of no further investments. But, you know, happy to take that for the record and go back and make sure we understand exactly what the obligations were in the language, Senator.

Senator SHAHEEN. I guess my understanding was a little bit different, so that would be helpful. We can submit a question for the record, if that's helpful to everybody.

Admiral HOWARD. Yes, ma'am, it is. Thank you.

Senator SHAHEEN. Thank you all.

[The information referred to can be found in the Questions for the Record portion of this transcript.]

Senator AYOTTE. Thank you, Senator Shaheen.

I do have a couple of brief followups, and they relate to end strength.

I want to—obviously, you all can weigh in on it, but particularly, General Allyn, General Paxton, as we think about our ground forces—would like to ask you, General Allyn, where our Army size is right now. How many of those men and women in uniform who have served or deployed combat missions on our behalf are receiving involuntary separations? What are—as we look at the potential for—if we were called to a major conflict, what our capacity is. I would like to, obviously, get General Paxton to comment on the Marine Corps, as well, because I think it's important for people to understand where we are, vis-a-vis the size of our force, the force structure, versus what we really need for size of force.

General Allyn?

General ALLYN. Thank you, Madam Chair.

The—to your first point, the size of our Army today is about 1.03 million in the Total Force. We're headed in this program toward a——

Senator AYOTTE. What's the Active Duty component of that?

General ALLYN. We are at about 482 today, headed to 475,000 by the end of this fiscal year, and toward a program force of 450,00 in the Active Force. As I mentioned, with 186,000 deployed on a daily basis in 140 countries, you understand my discomfort with trying to continue to meet emergent demands and current operations with a force that is getting smaller, and what that means,

in terms of our ability to build surge capacity in a time when the contingencies are becoming ever more real as we face them.

We have done a number of things internally to try to address that risk. We've gone to a sustainable readiness model, a goal of which is to deliver two-thirds of our force ready at any moment in time for an unforeseen contingency. Frankly, at a 980,000-soldier Total Force, that's the only way that we can make the math work for a major contingency against a peer competitor. We're sitting at about a third of the Total Force ready today sufficiently for combined-arms maneuver against a near-peer competitor.

It's not where we need it to be, and I am absolutely uncomfortable with a force that gets smaller as the demands for our forces continue to grow and the contingency requirements escalate in multiple theaters around the globe.

Senator AYOTTE. How many are—I know this isn't of your desire to do this, so—how many of our men and women who have deployed—and I know—understand many of them deployed more than once—are receiving involuntary separations as we downsize the force, even though it's not consistent with what we need to do to defend the Nation?

General ALLYN. I apologize, Senator Ayotte, for not answering that part of your question.

The bottom line is, if we continue on the path toward a program force, we will have to involuntarily separate another 14,000 soldiers, 10,000 of which are officers. On this last round of involuntary reductions, over 50 percent of those that we were asking to separate involuntarily had two or more combat deployments. These are all soldiers that have answered the call of the Nation, they have served admirably, and, because of the program force structure, we must separate them. It's not something we want to do. Frankly, we're doing everything that we can to ensure, through our Soldier for Life Program, that we're providing them a seamless transition. We're also ensuring that our Army Reserve and our National Guard leadership have the first shot at accepting these seasoned soldiers into their ranks. Frankly, it has really helped our Reserve component save dollars by taking experienced soldiers into the ranks and not having to retrain them. That has been a positive benefit of this unfortunate drawdown. But, it's still a situation that we should not find ourselves in.

Senator AYOTTE. Right. I would say that this is one where I really am concerned that we're not keeping faith with them, if they have deployed multiple times and we're going to give them an involuntary separation. I hope that's something we think about. But, also, the threats we face, given what we need to do.

General Paxton, I wanted to get your thought on this, as well. Because we've talked about it in prior hearings. We used to build for two conflicts, right? Then we went down to a one-and-a-half-conflict strategy. As I understand where we are now, if we got called to one major conflict, we're all-in. Can you help us understand that, from the ground perspective? I know we have naval and Air Force issues, as well, but in terms of the first in for us.

General PAXTON. Thank you, Madam Chair.

I'll try and work in reverse, given your last question. We were originally, many years ago, a two-MCO [Marine Corps order] force,

and then we reduced from there, and we are now at a—in a—defeat-deny is the strategy. The DSG [deployment support group] has not changed since 2012. I think the shared concern of the members here in the committee is, if you're all-in on the defeat piece, what is left for the deny somewhere else. If the deny grows exponentially, we may not have the indications and warnings we need for lead time, we may not have the strategic lift by sea or air. We may not have the—either the capability or the capacity to respond in time to keep the other one in either deny or impose costs. As we are commonly wont to say, capacity has a quality all its own.

To your original questions, Senator Ayotte, if I may, the Marine Corps at peak strength was 202,000. We knew, when we were asked for that authorization, that that was only going to be a 3- or 4-year authorization. This was pre-sequestration. We are—we have done three specific studies on optimal end strength of the Marine Corps. All three of those were completed before Senator Kaine's point about—this was pre-ISIL, pre-Ukraine, pre-South China Sea, pre-cyber, pre-Snowden——

Senator AYOTTE. Pre-all of the obvious——

General PAXTON.—pre-all of that.

Senator AYOTTE.—threats we face.

General PAXTON. As we came down from 202, Senator, we knew that the optimal strength of the Marine Corps was supposed to be 186-8. We are, today, en route to 182,000 by the end of this fiscal year. We are below where we would optimally like to be. Again, that study was based on previous—unknown previous conditions.

To your second point, we have not had to involuntarily separate anyone. We would obviously prefer not to break faith. I know the challenges that the larger and the other services have there. We continue to have, you know, 66 percent of the force on the first-term enlistment. It's a fairly young force. Most of them come in for 4 to 6 years, and then they separate. Our challenges are a little different.

We do worry, as I said earlier, under question, about the—some of the critical skills, Special Operations, cyber operations, pilots, and how we retain them.

Then, ma'am, just as an indicator, the combat capability that we have lost going below 186/8—when we went from 202 to 186/8 to 182—we have lost three infantry battalions, six towed artillery companies—excuse me—batteries. Three battalions, six batteries, four tank companies, and five AAV [assault amphibious vehicle] companies. That's conventional capacity that we have offered up because we had to pay for cyber, for space, for nuke, for third offset strategy, and those things that we know are national priorities. But, that has been the trade space, in terms of conventional capability.

Thank you.

Senator AYOTTE. I want to thank all of you for being here. I want to thank you for your leadership and important positions of defending our country and serving our country with such distinction. I want to thank all of the men and women who serve underneath you for the incredible work that they do making us proud every day and defending our Nation, and especially what we've learned today with the gaps in capabilities that we have. This is a real issue for

us, and I really appreciate your coming forward and testifying. Thank you for being here.

[Whereupon, at 11:56 a.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

CLOSE AIR SUPPORT REPORT

Senator AYOTTE. Section 142 of the fiscal year 2016 NDAA requires the Air Force to submit to Congress no later than September 31, 2016, an independent and detailed assessment of the required aircraft capabilities to replace the A–10.

1. General Goldfein, what is the status of the independent assessment required by the fiscal year 2016 NDAA?

General GOLDFEIN. The RAND Corporation is supporting this independent assessment, which will include direct and detailed responses to Fiscal Year 2016 National Defense Authorization Act language. While it is too early to provide any specific findings or recommendations, we expect to deliver this report to Congress on time.

A–10 VERSUS F–35 FLY OFF

2. Senator AYOTTE. General Goldfein, does the Air Force support the Director of Test and Evaluation's (DOTE) plans to conduct a CAS fly-off between the F–35A and the A–10 to ensure there is no degradation in CAS capability for our ground troops?

General GOLDFEIN. The Air Force fully supports the Director of Test and Evaluation's efforts to validate the operational effectiveness of the F–35A through a robust and rigorous Initial Operational Test and Evaluation period at the end of the System Development and Demonstration phase of the baseline program. These efforts, to include comparative testing of the F–35A's operational capabilities, will help ensure the air system will be able to successfully accomplish the required mission sets in the expected range of combat conditions.

TIME AT HOME BETWEEN DEPLOYMENTS

3. Senator AYOTTE. General Allyn and General Paxton. What type of Army and Marine Corps units have the least time at home between deployments?

General ALLYN. High operational tempo is one of the greatest challenges to the Army's ability to recover the readiness needed to meet contingency requirements. The types of units most affected by high operational tempo and that spend the least amount of time at Home Station are Division Headquarters, Combat Aviation Brigades, Patriot Battalions, and Brigade Combat Teams.

General PAXTON. Since the conclusion of Operation Enduring Freedom, USMC forces have been reconstituting and regenerating readiness with positive results. However, Operations Freedom Sentinel and Inherent Resolve continue to levy significant demand across our human intelligence (HUMINT), signals intelligence (SIGINT), communications, and tactical aviation (TACAIR) capabilities.

Although the Marine Corps' TACAIR Deployment-to-Dwell (D2D) ratio has improved over the past year from 1:1.7 to 1:1.8, stress on both airframes and personnel continues. The personnel operating tempo for TACAIR (F/A–18 and AV–8B) and Aerial Refueling (KC–130) maintenance personnel has reached levels similar to that experienced by the SIGINT, HUMINT, and communications communities; as low as 1:1.5 for select MOS's.

CMC has implemented measured and deliberate actions to further reconstitution and readiness recovery (i.e. MV–22/KC–130 forward presence decreases and reductions in VMFA flight line entitlements from 12 to 10) while ensuring combat effectiveness is not compromised in the process. Additionally, modification to the fiscal year 2017 Global Force Management Allocation Plan will further assist in managing stressed communities across the force and provide a baseline for fiscal year 2018 Global Force Management sourcing actions.

4. Senator AYOTTE. What is their current dwell time between deployments?

General ALLYN. Currently, Regular Army forces are not meeting the 1:3 deploy:dwell ratio goal. Most affected by this are: Division Headquarters at 1:1, Combat Aviation Brigades at 1:1.7, Patriot Battalions and Brigade Combat Teams are less than 1:2. These rotation ratios exclude forces assigned to combatant com-

manders. The continuing high operational demands for Army Forces from a shrinking Army is driving us to not meet the desired deploy:dwell ratio goals.

General PAXTON. The average dwell time for units across the Active Component (AC) is 1:1.9. As I indicated in my written statement and in my answer to your previous question, some communities and specific occupational specialties are deploying at faster rates.

Our ideal deployment to dwell (D2D) ratio is 1:3, which means a deployment of 7 months is followed by 21 months of time at home station. That home station time is required for the unit to conduct personnel turnover, equipment reset and maintenance, and complete a comprehensive individual, collective, and unit training program across all their mission essential tasks (METs) prior to deploying again. Today this timeline is challenged by the increased maintenance requirements of aging equipment, shortages in the availability of ships with which to conduct amphibious training, ensuring personnel fills are in place on time, and other factors to include school seats, training range availability and even weather.

Those challenges are compounded by the increasing demands on today's force, which have many of our units and capabilities deploying with a 1:2 D2D ratio, which translates to one third less home station training time than we would prefer. This challenges the ability of our units train to their full list of core missions and degrades our home station crisis response capability.

AIR FORCE MUNITIONS

Senator AYOTTE. DOD has said that the Pentagon is starting to run low on smart bombs and guided missiles. Consequently, this year's budget request includes $1.8 billion for munitions.

5. General Goldfein, can you discuss any potential munitions shortage?

General GOLDFEIN. The ongoing operations against ISIS are expending many more weapons than planned for a contingency operation. Consequently, some direct attack smart munitions and Air-to-Ground missiles (Hellfire) have current and forecasted inventory shortfalls. Mitigating these shortfalls will not begin to occur until fiscal year 2018 (FY18). Reprogramming actions and resources in the fiscal year 2016 and fiscal year 2017 budgets will replenish current operations expenditures, but do not address meeting the inventory objective.

6. Senator AYOTTE. General Goldfein, to what extent are coalition partners in the fight against ISIS helping to fund the munitions that the U.S. Air Force is expending in the air campaign against ISIS?

General GOLDFEIN. The coalition partners are not helping to fund the munitions the Air Force is expending in the air campaign against ISIS.

7. Senator AYOTTE. General Goldfein, to what extent are weapons shortages affecting prepositioned munitions inventories, and consequently readiness to address other potential conflicts around the globe?

General GOLDFEIN. The increased expenditures of certain munitions, along with known budgetary constraints since the August 2014 start of Operation Inherent Resolve (OIR) have resulted in reallocation of some munitions stocks from pre- and forward-positioned locations to the point of need. Replenishment of those stocks will occur through existing Air Force munitions prioritization and positioning governances.

The Air Force is below its inventory objective for almost all Precision Guided Munitions (PGMs). Due to low inventory numbers, Hellfire and laser Joint Direct Attack Munitions are only available for the U.S. Central Command Area of Responsibility. The Air Force is able to meet the OIR requirement in the near term but inventory levels for PGMs will continue to decline until new production increases.

NATIONAL COMMISSION ON THE FUTURE OF THE ARMY—ARMY DUPLICATION?

Senator AYOTTE. On January 28th of this year, the National Commission of the Future of the Army delivered its report to Congress, which was an effort driven by the fiscal year 2015 National Defense Authorization Act.

While there were dozens of recommendations made by the Commission, Recommendation 39 states that the Secretary of the Army should consolidate marketing functions under the authority of the Army Marketing Research Group (AMRG). The function currently resides in the Army Recruiting Command.

8. General Allyn, why, unlike other services, does the Army have two different directorates, which are at two different physical locations, in charge of branding, recruiting and marketing the Army?

General ALLYN. The Assistant Secretary of the Army for Manpower and Reserve Affairs, through the Army Marketing and Research Group (AMRG), is responsible for the Army Brand and the Army's national marketing program. AMRG activities support Regular Army and Army Reserve recruiting activities for officer, enlisted, and civilians; U.S. Army Recruiting Command is responsible for Regular Army and Army Reserve enlisted, warrant officer, and officer candidate recruiting.

Marketing and recruiting are separate functions, and, per best business practice, marketing is an executive (Headquarters, Department of the Army) function. For the Army, marketing is the means by which we communicate to, connect with, and engage our target audiences to convey the value of the Army. Successful marketing builds advocacy, dispels misperceptions, increases willingness to support and propensity to join, and sets the conditions for recruiting success. This approach of separating marketing from recruiting enables the Army to better maintain a unified Army Brand that underpins outreach to future soldiers and officers for the Active Army and the U.S. Army Reserves. The National Guard Bureau is currently responsible for all National Guard marketing; the National Commission on the Future of the Army Recommendation 39 concludes that, to the maximum extent feasible, the Army's marketing function should be managed as one Army. If approved, this legislative change would further unify the marketing of the Army brand by giving the Secretary of the Army responsibility for Army National Guard marketing as well.

PORT SECURITY BARRIERS

9. Senator AYOTTE. Admiral Howard, what action is the Navy taking to resolve the vulnerability of the inadequate Port Security Barriers (PSBs) in use to protect our national Fleet assets?

Admiral HOWARD. Waterside security barriers were deployed by the U.S. Navy in response to the October 2000 USS *Cole* terrorist bombing. The first waterside security barriers deployed were the commercially available Dunlop Boat Barriers developed by Dunlop GRG Holdings, Trelleborg, Sweden. In order to eliminate both vulnerability and reliability issues with this system the current Navy Port Security Barrier (PSB) was designed and fielded beginning in 2003.

The Navy's PSB was designed to defeat a wide range of small craft threats and has performed well for more than a decade. In 2008 the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN–RDA) recognized the Navy design team for developing an improved PSB which met operational capability requirements while reducing both acquisition and sustainment costs.

Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) has continually used lessons learned to modify the PSB design in order to improve operational capability and reduce life-cycle costs. Examples of these efforts include:

- Switching from steel to composite materials to reduce maintenance costs and extend service life
- Changing the barrier gate latch from a machined stainless steel design to a simpler and more robust chain latch design
- Changing primary barrier connection from a pinned design to a bolted flange design that reduces life-cycle costs
- Following industry's lead to replace wire rope mooring components with synthetic line to improve service life
- Use of improved materials for 'heavy wear' components in high energy environments to improve service life and reduce cost
- Use of a more capable capture net to improve high speed vessel stopping capability
- Extension of service life for capture nets to reduce replacement costs
- Use of new metal coatings to improve service life and reduce costs
- Use of anti-wetting coating to prevent ice adhesion to improve performance in icing conditions

In addition to continuing efforts to implement system improvements based on lessons learned, the Navy is aggressively looking for new water barrier system designs/technologies that are capable of providing increased levels of protection and reduce annual sustainment and operating costs.

10. Senator AYOTTE. Admiral Howard, in terms of force protection, what is the difference between the PSBs the Navy is currently utilizing and PSBs commercially available? Please provide a detailed plan to close the gap between the two.

Admiral HOWARD. After conducting a worldwide market study of waterside security barriers, the Navy selected seven waterside security barrier offerings to test in

an operational environment under mission conditions. Although industry changes in designs and materials used by private ventures increased the options available as compared to when the PSB was first fielded, the majority of the designs were very similar or licensed copies of the PSB system currently used by the Navy.

One notable exception was the HALO Maritime Defense System. This system is essentially a floating double wall that utilizes surrounding water to absorb the force of local impacts and environmental conditions (wave and wind impact). The system appears to meet operational requirements. While the initial cost appears higher than the current PSB, this system may have a lower lifecycle costs due to improved design, materials and an automated ship gate feature.

To determine if the HALO system design could provide the Navy increased capability the Navy has executed or is planning the following actions:

- In 2012, Navy Installations Command conducted a developmental test of the HALO waterside security barrier at the Aberdeen Test Facility in Aberdeen, MD
- In 2014, the Navy Physical Security Enterprise and Analysis Group conducted an Integrated Waterside Security technology demonstration in San Diego, CA
- In 2015, Naval Facilities Engineering Command began an eight-month In-Situ test of a semi-automatic "Guardian" gate onboard Naval Station Norfolk, VA
- In 2016, a followon test project onboard Naval Station Norfolk, VA will be awarded to determine the feasibility of a fully automated gate for the HALO system
- In 2017, a roll out of the full system at a location yet to be determined is planned to determine the feasibility of a full scale roll out
- In 2018 the Navy will develop the acquisition strategy for a Low Rate Initial Procurement

The analyses and results from the In-Situ test will be utilized to develop future waterside security barrier performance specifications and an acquisition decision of a NEXGEN Type II water barrier.

The projected total life-cycle cost of replacing the currently deployed U.S. Navy PSB with a next generation maritime security barrier is projected to cost in excess of $350 million.

While the evaluation of newer systems continues, Naval Facilities Engineering and Expeditionary Warfare Center will carry on efforts to improve the performance and durability of the current PSB system.

ADVANCED ARMOR

11. Senator AYOTTE. General Allyn and General Paxton, with the increased focus on full spectrum operations, what is your service doing to keep their advantage over peer and near-peer potential adversaries when it comes to advanced armors—including increasing survivability while reducing weight?

General ALLYN. In the early 2000s, the Army reacted superbly to equip our soldiers with life-saving body armor to defeat the relevant threat. The result was soldiers having an array of protective capabilities that were individually developed, such as body armor and combat helmets that protect against multiple threats associated with ballistic, blast, and blunt force events. This led to the development of an integrated protective capability for a complete Soldier Protection System (SPS) to provide soldiers with modular, scalable, and mission tailorable protection to reduce weight and increase mobility while also optimizing protection and remaining vigilant of adversary threats.

SPS is the Army's next generation Personal Protection Equipment system. SPS will improve the level of mobility, form, fit, and function for all soldiers (male and female) at a reduced weight compared to legacy body armor systems. Based on the combination of hard and soft body armor SPS systems that entered into Low Rate Initial Production, the body armor's weight alone will be reduced by about 15 percent, representing 6.5 pounds for a size medium soldier. These results were achieved through more ergonomic and better integrated designs and the use of advanced materials.

The SPS program represents the near-term investment in improving mounted and dismounted soldier survivability. The Army continues to invest in research and development for lighter, stronger, and more cost effective solutions in body armor. Research in advanced and emerging materials and manufacturing processes is ongoing and will continue to ensure that U.S. soldiers have the best protection available.

General PAXTON. The Marine Corps is employing a two-pronged approach to increasing survivability and reducing weight by looking at advances in armor technology as well as looking at vehicle protection systems (VPS), which are inclusive

of both hard kill and soft kill technologies. Hard kill systems typically employ an explosive countermeasure to disrupt, redirect, and/or destroy an inbound threat munition. Soft kill system typically disrupts the threat munition guidance system causing the rocket or missile to miss its intended target.

We are taking a proactive approach by examining the feasibility of various VPS's. We have a Deliberate Universal Needs Statement (D–UNS) for VPS as a means of defeating advanced generation Rocket Propelled Grenades (RPG) and Anti-Tank Guided Missiles (ATGM). We are looking to develop VPS capability with an eye to expanding our thinking beyond single vehicle protection, such as armor, to cooperative networks of systems that complement one another's capabilities to improve lethality, communication, command and control, and protection of the force. Ultimately, there is no single solution to the tactical challenges we face on the battlefield. Our VPS approach is three-fold:

- U.S. Army Expedited Active Protection Systems (APS) Effort: We assess these efforts as the most effective and efficient means for the Marine Corps to learn about the state of several mature hard kill systems via demonstrated performance and to best set the conditions to integrate and employ such systems when they are sufficiently developed and readied for service in combat. In close coordination we are looking to outfit a USMC M1A1 with APS while the Army looks at M1A2, Stryker, and Bradley options.
- Department of the Navy: We are also exploring rapid prototyping opportunities within the Department of the Navy (i.e. Office of Naval Research) to further develop soft kill technologies. Leveraging Navy expertise in electronic warfare and a robust warfare center capability, we view this avenue as one with strong potential to advance the capability and set the conditions for further development and eventual fielding.
- MAPS: We are maintaining a positive link with ongoing U.S. Army science and technology work within their Modular APS (MAPS) program.

Additionally, within our Amphibious Assault Vehicle (AAV) Survivability Upgrade (SU) program we are applying an improved armor package. This upgrade is derived from the need for an operationally effective amphibious armored personnel carrier capability bridge until the future amphibious portfolio of vehicles reaches full operational capability. The AAV (SU) provides increased survivability and force protection while retaining water and land mobility performance. With the AAV (SU), we will be fielding a new buoyant applique armor package, which replaces the old applique system, provides better ballistic protection, and increases the buoyancy of the upgraded AAV. The old applique armor system brought with it a significant weight penalty that detracted from the water mobility performance of the vehicle. In contrast the new system improves the water mobility performance of the vehicle by making the AAV float more efficiently.

IMPROVED ISR

12. Senator AYOTTE. General Goldfein, what steps is the Air Force taking to develop and procure advanced technologies for aircraft, ISR payloads, and orbiting platforms that will provide improved performance and lower weight?

General GOLDFEIN. The Air Force is investing in Science and Technology (S&T) areas for platform, sensor, and payload capabilities which demonstrate improved performance with reduced size, weight, and power (SWaP) requirements.

To enable the reduction in energy demand in future combat aircraft, the Air Force is investing in the development of adaptive turbine engine technologies that have the potential to reduce fuel consumption by 25 percent, provide higher thrust/sustained supersonic operation, and significantly enhance vehicle thermal management capability. We are also developing and demonstrating materials and processes technologies for air vehicle and subsystems to enhance lift, propulsion, low-observable performance, power generation management and affordability. Our research in ceramic, ceramic matrix composite, and hybrid materials technology will provide performance and supportability improvement in propulsion systems and high temperature aerospace structures.

Our investments in Space Electronics Technology focus on 3–D techniques to increase throughput while reducing SWaP, and also benchmarking tools to assess the ability of emerging satellite electronics technologies to lower SWaP. Cold Atom gyroscope efforts focus on reduced size and weight to expand GPS-free navigation to a large number of Air Force platforms. Elements of the S&T portfolio examine: lighter weight structures for space platforms; higher efficiency cryo-coolers; and higher efficiency solar cells to be used in spacecraft vehicles. In addition, S&T continues to

mature these technologies for scheduled flight experiments and transition to acquisition programs of record.

We have advanced sensor and imaging technology to see farther than ever before without increasing SWaP, extending range by up to 40 percent, especially in low visibility conditions. Our Optoelectronics and Photonics portfolio, which has been supporting work on silicon photonics, uses light to transfer information versus electrons in traditional integrated circuits for a significant reduction in SWaP, while increasing performance and reliability.

QUESTIONS SUBMITTED BY SENATOR JAMES INHOFE

THREATS VS RESOURCES

13. Senator INHOFE. General Allyn, how would you assess the future operations tempo of each of our services based on the assessment that former SecDef Gates made about aggressors, terrorists, revanchists, and expansionists half a world away are always interested in us?

General ALLYN. The Army has sufficient readiness, capability, and capacity to conduct counterterrorism and combat violent extremist organizations at current operations tempo. The Army is less than ready to conduct high-intensity ground combat against modernized aggressors, revanchists, and expansionists. Future operations tempo remains uncertain but the Army must be prepared to address all five challenges highlighted by former SecDef Gates' assessment.

14. Senator INHOFE. All, would each of you agree that budget constraints have forced each service to prioritize near-term readiness at expense of capacity, capability, modernization, and infrastructure? How does that impact long-term readiness?

General ALLYN. Yes, budget constraints have forced the Army to prioritize near-term readiness at the expense of capacity, capability, modernization, and infrastructure.

Current operational tempo, growing global instability, and lack of consistent and predictable funding over time will challenge the Army's ability to regain and sustain the combined arms proficiency needed for future contingencies. A return to sequestration will further delay modernization, disrupt full spectrum training plans, and prolong the Army's readiness recovery by three to five years. The Army already has minimal trade space to generate additional surge operating forces, and continuing fiscal turbulence will challenge the Army to meet the simultaneous requirements of the National Military Strategy.

Admiral HOWARD. Similar to our sister services, the Navy's readiness continues to be challenged in a fiscally constrained environment. The fiscal year 2017 Navy budget submission provides the resources needed to deliver sustainable forward presence and supports our continued readiness recovery efforts for long-term readiness. The budget also reflects tough choices made, including taking deliberate risks in shore infrastructure, to provide a balanced approach to meeting our security challenges. Should budget constraints continue, we will impact all aspects of the fleet; capacity, capability, modernization, and readiness, both ashore and at sea.

General PAXTON. Current budget constraints have required the Marine Corps to prioritize near-term readiness at the expense of long-term modernization and infrastructure investment. For instance, in order to protect the readiness of our deployed and next-to-deploy forces and to meet current overseas commitments, the Marine Corps is accepting risk to the readiness of our home station units. These units constitute the ready "bench" of forces that would surge to meet an unexpected crisis or major contingency. Such a posture incurs additional risk in our ability to simultaneously meet current operational demand and respond to a major contingency. Achieving a ready bench—one capable of meeting major contingency requirements and effectively responding to the unforeseen—requires a force resourced with sufficient numbers of marines who are properly trained and equipped to operate across the full range of military operations.

The current environment has also required us to adopt a fiscally constrained end strength of 182,000 in fiscal year 2017. At this level, we will accept deployment-to-dwell ratios of 1:2 and 1:4 for our Active and Reserve components, respectively. This is less than our goal of 1:3 for the Active component and 1:5 for the reserves, placing added stress on our marines and marine families. Some types of Active component units did not achieve even these reduced dwell time goals in fiscal year 2015. This reduced end strength will also exacerbate the imbalances in readiness described above.

We are already balancing the cost of modernization efforts necessary for long-term readiness against near-term readiness by focusing on essential areas, including the F–35, CH–53K Heavy Lift Replacement, the Joint Light Tactical Vehicle (JLTV), and Amphibious Combat Vehicle (ACV) 1.1, as well as smaller programs such as Ground/Air Task Oriented Radar (G/ATOR) and Networking on the Move (NotM). At the same time, we are investing resources in refreshing or upgrading legacy equipment we must continue to rely upon, including the survivability upgrade of our Assault Amphibian Vehicles. The longer we continue to rely upon such aging systems, including those such as the over 33 year old Light Armored Vehicle fleet and 26 year old M1A1 tank fleet for which we do not yet have funds to program replacements, the more resource intensive those systems become to maintain. Any further constraints on our budget may actually increase these costs, having an even greater negative impact on both long and short term readiness.

Finally, we have had to assume risk in our Facilities Sustainment, Restoration, and Modernization (FSRM) accounts, funding facilities sustainment at approximately 74 percent of the requirement in fiscal year 2017. Though this level allows us to maintain our facilities at an average condition of "Q2," or "fair," it precludes further improvements. Restoration and modernization projects will be limited to those that address potential life, safety, and health requirements, as well as investments in mission critical facilities. Such a strategy, while necessary in the short term, risks reversing the gains we have realized over the last six years from investments and recapitalization of barracks, child development centers, and various operational, training, and support facilities. Furthermore, inadequate facilities maintenance for sustained periods of time will lead to more costly repairs, ultimately driving up the cost of future FSRM.

General GOLDFEIN. Yes, due to budget constraints, the Air Force has been compelled to take risk in capacity, capability, modernization and readiness. These constraints, combined with a consistent high operational tempo, have negatively impacted the service's ability to affect a readiness recovery inside the next decade. The fiscal year 2017 budget request prioritizes capacity and readiness ahead of modernization.

The Air Force cannot effectively sustain its current force structure and at the same time sustain the current level of operational demand. We are too small for the requirements. Additionally, the Air Force has not been allowed to divest cold war assets (discontinued BRAC, directed retention of legacy systems). To sustain existing force structure and meet operational requirements, the Air Force has been compelled to take risks in nearly every area to include acquisition, legacy sustainment, and readiness.

In the short-term, the Air Force is forced to fund some key readiness accounts below the minimum requirements. These short-term decisions impact long-term readiness by delaying the Air Force's ability to begin the path to recovery. Readiness recovery takes time and consistent attention to each of the Air Force's readiness levers.

15. Senator INHOFE. All, is the current defense budget sufficient to simultaneously rebuild the readiness of each of your services and modernize the force for the future while continuing current operations around the globe?

General ALLYN. No, the Army's PB17 budget request is minimally sufficient to meet our needs. The Chief of Staff of the Army has testified we are assuming high military risk. This budget strikes the best balance possible between readiness, modernization, and end-strength. Soldier readiness is our number one priority; in order to meet current operational requirements, funding for near-term readiness is prioritized at the expense of modernization and end-strength. The budget request provides sufficient capacity, capability, and readiness to respond to a changing global security environment. The President's Fiscal Year 2017 Budget request, in conjunction with stable and predictable funding in the future, will rebuild Army readiness for large-scale, high-end, ground combat in order to protect national security interests.

Admiral HOWARD. The Navy's readiness continues to be challenged in a fiscally constrained environment. Navy's fiscal year 2017 budget submission provides resources needed to deliver sustainable forward presence and funds our continued readiness recovery efforts. This budget reflects tough choices made under current fiscal constraints to provide a balanced approach to meeting our security challenges. Balancing capability and capacity, delivering current and future readiness, providing naval presence to the geographic combatant commanders, while rebuilding our contingency response posture in a difficult budget environment, has required hard choices and tradeoffs.

General PAXTON. No, our current budget is not sufficient to address these issues simultaneously. In fact, to meet current operational requirements, the Marine Corps is forced to prioritize the readiness of our deployed and next-to-deploy forces. In the current fiscally-constrained environment, the Marine Corps accepts risk in our current home station readiness—the ready "bench" that would surge to meet a major crisis or contingency—and our future modernization.

General GOLDFEIN. Our fiscal year 2017 budget request prioritizes capacity and readiness ahead of modernization. However, despite relief from the Bipartisan Budget Act, the Air Force was still forced to make sacrifices as a result of sequestration. Our combat air forces remain at below 50 percent readiness for full spectrum conflict, and we were also compelled to defer F–35 acquisition this year and across the Future Years Defense Program. Continued fiscal uncertainty and spending cap restrictions will make our balancing efforts even more difficult, culminating in a modernization bow-wave beginning in 2022.

PROCUREMENT DELAYS AND 'BOW WAVE'

16. Senator INHOFE. All, what is the impact of delaying modernization on each of your services ability to conduct full-spectrum operations?

General ALLYN. Delaying modernization will exacerbate capability gaps against evolving threats. Lack of modernization risks the Army's ability to conduct ground operations of sufficient scale and ample duration to achieve strategic objectives or win decisively at an acceptable cost against a highly lethal hybrid threat or near-peer adversary in the unforgiving environment of ground combat.

Admiral HOWARD. Modernization programs upgrade existing systems and introduce new systems, delivering improved readiness and enhanced capabilities to the fleet. This is vitally important to the Navy and our nation as we seek to maintain our robust power projection advantage over our adversaries. For example, the DDG modernization program provides those ships the advanced combat and weapons systems essential to defeat emerging technologically advanced threats, and the mid-life modernizations of our big-deck amphibious ships provides Joint Strike Fighter integration and continued interoperability in our amphibious fleet.

Delaying modernization degrades Navy's ability to conduct full-spectrum operations by reducing capability, interoperability, and operational availability. Any delay also imposes increased maintenance costs to sustain legacy equipment. For example, delaying the Submarine Warfare Federated Tactical System (SWFTS) shipset installations results in more equipment failures and ultimately lost operational time. Readiness degradation is also evident in the modernization of the tactical air force. When aircraft such as the F/A–18A–D and AV–8B reach the end of service life before replacement aircraft are delivered into service, Navy faces significant challenges in strike fighter inventory management.

Modernization programs provide the best balance of capability and capacity to the fleet by enhancing near-term readiness while ensuring long-term relevance. In the years ahead, we will need adequate funding levels and predictability to fully pay back our readiness debt from over a decade at war. Navy will continue to work with Congress to fund, develop, and execute vital modernization programs.

General PAXTON. The fiscal year 2017 President's Budget request provides the nation with a Marine Corps that is forward deployed and ready to meet today's challenges. However, this readiness comes at a steep price. Maintaining the readiness of these forces during a period of high operational tempo amid the current fiscal uncertainty comes with ever-increasing operational and programmatic risk that must be addressed at some point. As resources diminish, we will continue to protect the near-term operational readiness of our deployed and next-to-deploy forces at the expense of equipment maintenance, facilities sustainment, and investments in our equipment and infrastructure.

Today I would highlight our tactical aviation (TACAIR) fleet as an example of the impact of delayed modernization. The average age of our TACAIR fleet is over 22 years, and as I testified we are experiencing challenges in maintaining sufficient Ready Basic Aircraft (RBA) to execute necessary training and fulfill operational commitments.

While we are working to recover the readiness of our existing airframes, modernization through the introduction of the F–35 is the long term solution to that challenge. Our first F–35B squadron declared Initial Operating Capability in 2015. It will re-locate to a forward location in Japan in fiscal year 2017 after the stand-up of the second squadron. The continued and timely fielding of the F–35 will not only improve our ability to conduct full spectrum operations, but also have a transformational impact on Marine Corps doctrine, providing 5th generation capabilities to support sea control operations (SCO) with the Navy and enable joint forcible

entry operations (JFEO) by the MAGTF even in the most contested environments. This essential warfighting capability is experiencing delays and under constant fiscal pressure to "slide right" or "reduce buys" in our current fiscal environment.

General GOLDFEIN. The impact manifests itself in eroded capability and closure of the capability gap between us and potential adversaries. Our legacy fleet is not as capable against advanced integrated air defense capabilities, and space and cyber domains are now contested. Our modernization efforts focus on addressing these concerns. Further delaying our modernization efforts puts airmen, the Joint Force, coalition partners and mission success at greater risk.

17. Senator INHOFE. All, is there a procurement 'bow wave'—pushing out and flattening procurement of critical modernization programs, all with growing budget demand, because they will not fit into the current budget topline?

General ALLYN. Yes, there is a procurement "bow wave" of critical modernization programs. This bow wave differs from funded requirements in that the bow wave contains quantities that can be delayed with tolerable risk in the near term but jeopardizes our ability to defeat and deter enemies in the future.

The bow wave is caused by reduced budget caps that have forced the Army to decrease procurement quantities and research and development spending. These reductions allowed us to protect our number one priority, readiness and future modernization, through science and technology investments.

Admiral HOWARD. Navy continues our commitment to modernization through investments in critical programs such as CG, DDG, and LSD-class modernization and legacy F/A–18 service life extension. We are concurrently adding new capabilities through such priority programs as the *Ohio* Replacement, Joint Strike Fighter, P–8 procurement, and the development of unmanned systems. The budget request delivers current and future readiness and postures our forces to meet geographic combatant commanders' missions. However, in order to rebuild our contingency response posture in the difficult fiscal environment, we have accepted risk in the modernization and maintenance of our shore infrastructure, including piers, runways, hangars, utility systems, and other support facilities. Long term underinvestment in these facilities will take an eventual toll on our ability to support deploying forces.

General PAXTON. The recapitalization of our force—through investments in aviation, ground combat vehicles, command and control, and digitally interoperable protected networks, as well as the reset of our ground equipment—is critical to our future readiness. With Congress' support, we have been able to protect our investments in key equipment modernization programs such as the Amphibious Combat Vehicle, the Joint Light Tactical Vehicle, and the RQ–21 Unmanned Aerial System, as well as our blue-dollar F–35 and CH–53K programs while incurring acceptable risks in other areas such as our decades old Light Armored Vehicle and M1A1 tank fleets. In addition, we have reset over three quarters of our ground equipment that was employed in Iraq and Afghanistan and returned approximately 50 percent to the operating forces. For these reasons, under current fiscal conditions, we do not anticipate a procurement 'bow wave' of unfunded requirements within the Marine Corps' critical modernization programs. Further reductions to our topline may impact our ability to maintain this stability within these programs.

I do have a concern, however about the larger Department of the Navy (DON) modernization requirements, specifically in regards to the *Ohio*-class Replacement Program (ORP). If the DON continues to be obligated to fund that program from within our already pressurized total obligation authority (TOA), it will crowd out other vital shipbuilding programs. I am particularly concerned about the impact on amphibious shipbuilding. As I stated, we have a minimum requirement of 38 platforms to support the nation's forcible entry requirement and steady state demand exceeds 50 vessels. We have accepted an inventory of 34 ships, with appropriate availability, as a short term risk, but the ORP has the potential to seriously exacerbate and extend that risk. We currently have both an inventory and availability issue with amphibious shipping.

General GOLDFEIN. Yes, the Air Force is facing a 'bow wave' that is now making contact with the Future Years Defense Program. The bow wave is made significantly more difficult by the large cost of recapitalizing the nuclear enterprise. Secretary Carter estimates it will cost $18 billion per year for fiscal years 2021–2035 for all three legs of the triad. The Air Force is attempting to reduce the impact of the bow wave by sequencing programs over time. This has forced the Air Force to reduce or delay procurement of systems such as F–35, T–X, Combat Rescue Helicopter (CRH), GPS III, and JSTARS recapitalization. This has also driven the Air Force to extend legacy airframes to compensate for delayed recapitalization.

18. Senator INHOFE. All, if yes, how does this 'bow-wave' impact future costs as well as cost to operate and maintain its legacy systems?

General ALLYN. The bow wave is created by costs that had to be deferred to the future to stay under the spending caps. The deferred spending reduces procurements per year and increases the time required to buy out required quantities, both of which drive costs up.

Delayed procurements also create capability gaps, forcing the Army to slow the divestment of older equipment to prevent the capability gap from widening. These older systems cost more to sustain as they approach the end of their economic useful life, which will result in increased field and depot level maintenance costs.

The Army needs sustained modernization to efficiently provide capabilities to our soldiers and to avoid rapidly procuring equipment at premium prices to modernize deploying forces when a conflict occurs. Efficient modernization paves the way for next generation systems and achieves lowest unit costs and shortest procurement timelines. It reduces sustainment costs by allowing the Army to divest older obsolete equipment while increasing operational readiness to support strategic deterrence, depth, and responsiveness.

Admiral HOWARD. A delay to the procurement of critical modernization programs could lead to a Navy that can't meet warfighting requirements. In addition, this would put pressure on future budgets to recapitalize the Navy's force structure in several programs concurrently, as we are presently experiencing with the Virginia-class, Ohio Replacement, and Joint Strike Fighter. While the Navy continues to effectively modernize and extend the service life of many of our in-service platforms, such as DDG 51, CG 47, LSD-class ships, and legacy F/A–18 aircraft, eventually the cost to operate and maintain these legacy systems exceeds the cost of replacements.

General PAXTON. As I stated in my response to the previous question, we do not anticipate a procurement 'bow wave' of unfunded requirements within our critical modernization programs.

However, while we have been able to protect our near-term readiness while modernizing, our home station (non-deployed) readiness, as well as our infrastructure sustainment and investment accounts, have borne the burden of our ongoing fiscal challenges. Roughly half of our non-deployed force is insufficiently resourced, in terms of having both the level of required and trained personnel and equipment, to achieve readiness levels needed to execute wartime missions, respond to unexpected crises, and surge for major contingencies. The return of reset equipment from Iraq and Afghanistan to the operating forces has relieved some of these shortages, but continued cuts to Operation and Maintenance (O&M) accounts will reverse these gains and exacerbate challenges to our non-deployed readiness, placing us at risk in the event of major contingencies.

Our infrastructure accounts have also become a bill payer for our deployed units. The Marine Corps has spent over $9 billion in facilities investments over the past six years to repair or recapitalize barracks, child development centers, and various operational, training, and support facilities, raising the average "Q" rating of our facilities from Q3 (Poor) to Q2 (Fair). Now, recent decreases to facilities sustainment funding have accelerated the rate of infrastructure degradation and precluded further improvements. In addition, fiscal year 2017 restoration and modernization will only address potential life, safety, and health requirements. Such a strategy drives up repair, restoration, and new construction costs over the long term.

General GOLDFEIN. Procurement reductions and delays are forcing the Air Force to extend legacy airframes. Extending legacy airframes is becoming increasingly expensive due to service life extension program costs, modification requirements to maintain viability in the evolving threat environment, and parts obsolescence.

FORCE STRUCTURE

19. Senator INHOFE. All, how much of each of your service's capacity is consumed by day-to-day, steady-state operations?

General ALLYN. Combatant commanders continue to request Army forces to address current and emerging challenges to global security. Currently, the Secretary of Defense has ordered the assignment or allocation of all three Army Corps HQs, six of ten Regular Army Divisions, and 20 of the 59 Regular Army and Army National Guard BCTs in support of combatant commander requirements. In total, over 187,000 soldiers are supporting contingency operations, efforts to deter adversaries and assure allies, and shape today's security environment. Today's demand for forces strains the Army's ability to sustain current readiness levels, recover readiness for the future, and respond to future contingencies.

Admiral HOWARD. On average, 90–100 ships Navy ships are deployed or forward stationed at any given time. This follows Navy's model that, in general, one third

of the fleet is underway, one third of the fleet is training to deploy or maintaining surge, and one third of the fleet is in maintenance.

General PAXTON. Generally, a third of the Marine Corps' Operating Forces are forward deployed. The allocation of the Service's capacity remains in alignment with priorities as outlined in the current Guidance for Employment of the Force (GEF).

Overall, the majority of steady state activity executed in support of the Combatant Commands is conducted by forces that are assigned or allocated in support of SECDEF priority missions. In many cases, these steady state activities contribute to both the achievement of combatant commander campaign objectives and the readiness of the force to execute operational requirements.

General GOLDFEIN. Over 24,000 airmen are currently deployed supporting combatant commander requirements with an additional 80,800 Active, Guard, and Reserve stationed overseas. Thus far in fiscal year 2016, the Air Force has flown over 500,000 flying hours with approximately 110,000 in support of overseas contingency operations. Our Mobility Forces have passed 130 million + pounds of fuel, airlifted more than 25,000 passengers and over 15,000 short tons of cargo. Approximately two thirds of Air Force fighter squadrons are engaged on a day-to-day basis. This includes units deployed/allocated to CENTCOM/PACOM/EUCOM, forces forward-stationed in EUCOM/PACOM, Air National Guard units supporting NOBLE EAGLE ACL–5 requirements, and units who are prepared to rapidly deploy in support of the Global Response Force.

20. Senator INHOFE. All, what is each of your service's capacity to provide additional "surge" forces to respond to a major contingency?

General ALLYN. The Chief of Staff of the Army recently stated "We risk the ability to conduct ground operations of sufficient scale and ample duration to achieve strategic objectives or win decisively at an acceptable cost against a highly lethal hybrid threat or near-peer adversary." Less than one-third of the Army has achieved acceptable readiness levels to conduct sustained ground combat. The Brigade Combat Team is the Army's primary fighting formation, and only 20 of 59 (34 percent) BCTs are ready. Of those: 11 (18 percent) are Assigned or Allocated—committed—to Combatant Commands. The remaining nine (15 percent) belong to the Army, forming the backbone of current surge capability.

Admiral HOWARD. Navy's capability to provide additional "surge" forces in response to a major contingency varies by major force element and depends on the specific requirements and timelines of the contingency plan being executed.

As we rebuild our readiness due to prior year over utilization, Navy is challenged across a variety of force elements to meet the "surge" requirements, in both quantity and timeline, of our most demanding operational plans. In cases where we can provide initial contingency response, we remain challenged to provide follow-on forces in accordance with plan timelines. This stems from the overconsumption of our Naval Forces for the last 15 years, deferring required maintenance and modernization, and the lingering effects of sequestration.

Navy and the Department of Defense remain intensely focused on recovering the readiness of its fighting forces. Navy is recovering readiness "in-stride" through implementation of the Optimized Fleet Response Plan (OFRP). OFRP allows Navy to continue to provide a baseline level of global presence while we work through a backlog of ship and aircraft maintenance, conduct required modernization, increase the efficiency of our processes, and better align our ships, manning, and command and control structures.

For Navy, readiness recovery does not necessarily correlate to an increase in global presence for a particular force element, but rather builds surge capacity. Over time, OFRP will increase the ready forces Navy has "on the bench" and available to respond to contingency.

General PAXTON. The Marine Corps is Congressionally mandated to be the United States most ready fighting force. As such it stands ready to rapidly deploy in order to protect national interests. The Marine Corps metric of force capability is not the individual or unit, but the Marine Air-Ground Task Force (MAGTF). The MAGTF comprises a command element (CE), ground combat element (GCE), aviation combat element (ACE), and logistics combat element (LCE) to win battles and fight the nation's wars. These MAGTFs and scalable and expeditionary. The Marine Corps organizes, trains, and equips to routinely provide combat ready, amphibious MAGTFs. Your Marine Corps today is a one-Major Contingency Operation (MCO) force and would be all-in to defeat an adversary in an MCO. "Surge" forces available for an MCO would be all forces not currently deployed to support combatant commander theater campaign plans or engaged in operations overseas.

Marines are ready to deploy, but our own Marine Corps' Active component surge availability to respond to an MCO is currently limited by aviation and command ele-

ment readiness as well as by joint aviation, amphibious shipping and strategic lift availability. Reserve unit availability is dependent on funding and appropriate authorities to mobilize and deploy reserve forces.

Ready units are trained in mission essential tasks (MET) and certified by the Service to have the necessary competencies to complete missions designated for that unit type (e.g. "Ready" Infantry battalions are offense, defense, security, and amphibious operations qualified). MCO execution could call for immediate deployment through reduced or non-training of a specific MET, partial unit employment (i.e. artillery batteries versus a full artillery battalion), or additional time to prepare. This comes at increased risk to force, risk to mission and risks surrendering the initiative to our adversaries.

General GOLDFEIN. If required, the Air Force is postured to provide nearly 100 percent of its combat force in response to a major contingency; however, surging to that contingency may involve disengaging from existing steady-state operations. While less than 50 percent of Air Force units are currently full-spectrum ready, the Air Force can surge forces at less than full-spectrum readiness; however, if airmen are not ready for all possible scenarios, especially the high-end, contested fight, it could take longer to get there, it could take longer to win, and potentially cost more lives.

21. Senator INHOFE. All, given the current and projected threat environment and the increased demands being placed on your force structure, are each of your services sized to meet increased operational requirements? If not, what is the right force structure size for each of your services?

General ALLYN. The Army at 980,000 (450,000 Active Component, 335,000 Army National Guard, 195,000 United States Army Reserve) is at the edge of its ability to meet the strategy to defeat an adversary in one major combat operation while simultaneously denying the objectives of an adversary in a second theater. Over 180,000 soldiers are supporting combatant commanders around the world today. The National Military Strategy (NMS) calls for a fully resourced total force of about 1.2 million. But, given the current lack of sufficient funding to maintain a force of this size, the Army must make the most effective use of available forces. The Chief of Staff of the Army testified that for the Army to reduce military risk to a moderate level we require an Army Total Force of 1.2 million to meet the needs of the NMS.

Admiral HOWARD. Navy sources current rotational and emergent combatant commander (CCDR) force requirements as directed by the Secretary of Defense (SecDef) in the Global Force Management Allocation Plan (GFMAP). SecDef orders are the result of a Joint Staff-led Global Force Management (GFM) process that balances competing CCDR demands with available resources and strategic objectives. GFM allows SecDef to make risk-informed decisions to align U.S. Military forces and capabilities against current priority requirements. Through the GFM process, Navy meets the critical elements of Asia-Pacific rebalance while still supporting operations in other theaters, such as Europe or the Middle East.

Navy's 2014 update to the 2012 Force Structure Assessment (FSA) identified a 308 ship combatant force as the minimum required to meet Defense Strategic Guidance missions. The 308 battle force is the right mix of ships, by quantity and type, with the requisite capability and capacity to fulfill all of the Navy's essential missions at an acceptable level of risk based on mission and threat projections, based on CCDR input and verified by the Navy's analytic process.

General PAXTON. After a deliberate Marine Corps Quadrennial Defense Review study in 2014, the study identified 186,800 as the optimal force size to address the forecast demands foreseen at that time. World events continue to challenge the assumptions behind that forecast, both in terms of the world situation and capability requirements such as cyber and special operations, and we are reassessing our projected future requirements. For example, Ukraine, South China Sea, and counter-ISIL in Iraq and Syria have all occurred or significantly expanded in scope since our 2014 review. As shown by our operations in 2015, your Marine Corps continues to be in high demand from our regional COCOMs as well as the State Department at our diplomatic posts overseas. With our stabilization at an end strength of 182,000 we will continue to satisfy many but clearly not all of those demands. That demand signal has not substantially abated due to the emergence of threats in new forms, gradually increasing the strain on our current force level. It is clear that an 186,800 force is closer to a minimum sized Marine Corps for today's world situation.

General GOLDFEIN. Our fiscal year 2017 (FY17) budget prioritized capacity and readiness over modernization. As such, the Air Force maintains the appropriate force structure to meet the current requirements of the Defense Strategic Guidance, but at greater overall risk to the nation as a result of increased warfighter demand and continued fiscal constraints. In order to rectify this situation, the Fiscal Year

2017 President's Budget increases Active component end strength to support A–10 force structure, stand-up of F–35 units to sustain fighter capacity of 54+1 Total Force fighter squadrons. It also increases maintenance capacity to begin improving readiness, and the expansion of training capacity to meet the needs of additional end strength.

22. Senator INHOFE. All, can you comment on the current deployment to time at home ratio, retention, and the morale of each of your services?

General ALLYN. While the Active Component (AC) Army is currently exceeding the overall deployment to home goal ratio of 1:3 for larger, named operations, and the Reserve Component (RC) is likewise exceeding its overall deployment to home goal of 1:4, certain Regular Army Forces are challenged to meet these ratios for all operational deployments because of high demand for their capabilities. Regular Army forces that are not meeting the 1:3 deploy-to-dwell ratio for all operational deployments are: Division Headquarters at 1:1, Combat Aviation Brigades at 1:1.7, Patriot Battalions and Brigade Combat Teams at 1:2.

The number of soldiers deploying in support of combat operations is less than 20 percent of the number who deployed in the mid and late 2000's. This has allowed the Army to surpass its dwell goals despite high operational demand for certain capabilities.

The Army continues to retain soldiers at high levels, which is a testament to the patriotism of our soldiers, support of our Families, and the quality of leadership within our ranks. Active and RC Noncommissioned Officer (NCO) and Officer satisfaction with operational tempo increased between 2008 and 2012, and has remained stable since then. Over the last few years, the percentage of Active junior enlisted soldiers and officers planning to stay in the Army until retirement has remained above the historic average. The percentage of Active NCOs planning to stay markedly increased between 2012 and 2015 (from 59 percent to 70 percent).

Admiral HOWARD. While extended deployment lengths have historically had a negative impact on retention, it is difficult to conclude that retention rates are significantly affected by longer deployments alone since many other factors influence a sailor's retention decision. Aggregate retention remains strong and there is no indication that sailor morale has been negatively impacted by longer deployment lengths. Our Optimized Fleet Response Plan (OFRP) establishes deployment lengths (six to seven months, depending on the particular platform) designed to provide greater stability and predictability for sailors and their families.

General PAXTON. Based on the fiscal year 2016 and fiscal year 2017 Global Force Management Allocation Plans (GFMAP) and a force structure of 182,000 marines, the Active Component (AC) has maintained a Depth-to-Dwell (D2D) ratio of 1:2 or better for some portions of the force. However, infantry battalions, communications battalions, MV–22 Osprey, tactical aviation (TACAIR) and KC–130J (VMGR) squadrons have fallen short of the 1:2 D2D ratio due to global demand requirements and aviation type/model/series transitions. Additionally, Operations Freedoms Sentinel and Inherent Resolve continue to levy significant demand with respect to personnel tempo across our human intelligence (HUMINT) and signals intelligence (SIGINT), capabilities. The Reserve Component (RC) will continue to maintain an overall Deployment-to-Dwell (D2D) no less than 1:4.

An fiscal year 2016 mid-year assessment was conducted to determine the Marine Corps' progress toward meeting the new prescribed end strength target of 182,000. The Marine Corps has adjusted its First Term Alignment Plan (FTAP) and Subsequent Term Alignment Plan (STAP) boat spaces accordingly and does not foresee any issues with meeting its FTAP and STAP retention goals. The Service assesses it will complete its fiscally driven drawdown to 182,000 by the end of this fiscal year.

The current morale in the United States Marine Corps remains high in every clime and place, despite protracted engagements across the globe. History has shown, in fact, that marines enlist and reenlist in order to deploy and fight and execute our nation's most critical missions. We recognize that initiative, endurance, and patriotism. Our solemn obligation is to provide them the time and resources to properly train pre-deployment, and then the best of equipment and fullest manning when they deploy. Marines have, are, and will continue to be professional maintaining the good order, discipline and teamwork necessary to sustain our readiness in peace and guarantee our success in the future operational environment.

General GOLDFEIN. The Air Force has recognized that the evolving geopolitical situation continues to place significant demands on the force and we recognize the increased strain this places on our airmen. The Air Force's capacity to reach the SECDEF's goal of 1:2 deploy-to-dwell ratios is dependent on both its End Strength and the number of airmen the Air Force must deploy (Operational Tempo). As a re-

sult, the Air Force has embarked on a growth strategy to address key capability gaps in the nuclear, maintenance, cyber, intelligence, surveillance and reconnaissance, and support career fields, adding roughly four thousand in end strength across these enterprises. As warfighter demands persist, the fiscal year (FY) 2017 budget cycle sought to carry forward fiscal year 2016 end strength levels of 317 thousand to stabilize the force and posture for future manpower increases in order to address maintenance capacity shortfalls, additive F–35 bed-downs, expanded training capacity requirements, and systemic unit under-manning.

The Air Force is also retaining experience through robust and expanded incentive programs, like Selective Reenlistment Bonuses (increased from 40 specialties in fiscal year 2015 to 117 in fiscal year 2016/17); bringing on prior service accessions; utilizing Reserve Active Duty tour opportunities; and implementing High Year of Tenure extensions (increased from 38 specialties in fiscal year 2015 to 122 in fiscal year 2016/17). These programs target our shortfalls across the board with specific emphasis on battlefield airmen, maintenance, Intelligence, Surveillance and Reconnaissance, support, nuclear, Air Liaison Officer, Intel, Remotely Piloted Aircraft pilots, and Cyber career fields.

But we are concerned. The Air Force is smaller, older and busier than it has ever been. We need Congress' support for increased end strength to get after our capability and readiness challenges including deploy to dwell.

DEPOTS, SHIPYARDS AND AMMUNITION PLANTS

23. Senator INHOFE. All, are your depots, shipyards and ammunition plants adequately funded to ensure your weapon systems are meeting current operational requirements or do you have shortfalls? Are they driven by budget or other factors?

General ALLYN. Presently, the depots and ammunition plants are adequately funded to meet operational requirements. This has been possible primarily due to Overseas Contingency Operations (OCO) funding in support of the Reset efforts and deployments. As OCO funding is eventually discontinued, Base Program funding must be increased to meet enduring requirements. Manufacturing arsenal funding in the Base Program continues to present a challenge for the Army due to of workload (low) to workforce (high) imbalance.

Admiral HOWARD. The Navy maintenance budget requests are built upon independently certified models, reflecting engineered maintenance plans for each ship class and aviation type/model/series. Our shipyards and aviation depots have been challenged by emergent work beyond that expected, associated with a decade of high tempo operations and additional wear on assets.

Resetting our surface ships and aircraft carriers after more than a decade of war led to significant growth in public and private shipyard workload. The Navy baseline budget request funds 70 percent of the ship maintenance requirement across the force, addressing both depot and intermediate level maintenance for carriers, submarines and surface ships. OCO funding provides the remaining 30 percent of the baseline requirement and allows for the continued reduction of surface ship lifecycle maintenance backlogs.

The Fleet Readiness Centers (FRCs) and Navy's aviation depots have been challenged to recover full productivity after hiring freezes, furloughs, and overtime restrictions in fiscal year 2013. Through a concerted hiring effort with the support of congressional budgetary increases, the recovery in maintenance capability is in progress. However, the FRCs face a significant backlog of work, particularly for the service life extension of our legacy F/A–18 Hornets. FRCs hiring progress returned to pre-sequestration manning levels in fiscal year 2015 and they continue to adjust hiring in order to ensure the workforce can meet the workload demand.

The Aviation Depot Maintenance program is funded to 76 percent in baseline and 85 percent with OCO for new work to be inducted in fiscal year 2017. This funding level supports repairs for 583 airframes and 1,684 engines/engine modules. A $34 million funding shortfall to achieve the executable level of aviation depot maintenance has been identified in the Chief of Naval Operations Unfunded Priorities Letter and we will continue to monitor the impacts.

General PAXTON. The depot and field-level maintenance accounts supporting equipment readiness in forward-deployed/operational environments, home station, and reset have kept pace with requirements over the last decade. However, current fiscal realities require difficult decisions across all pillars of readiness, to include maintenance. Through baseline and OCO funding, our fiscal year 2017 depot maintenance program is sufficient to meet all current operational and reset requirements but results in risk to home station maintenance. We anticipate an enduring need for OCO funding in support of forward-deployed operations, to include maintenance accounts. To ensure operational requirements are met and mitigate this risk in exe-

cution, we use a complex depot maintenance model which optimizes funding to maximize readiness and warfighting capability. Validated warfighting values associated with equipment readiness drivers are key variables in the optimization model computation. This risk is manageable in the short term, but if sustained, will impact ground equipment readiness in the long term.

I do have and continue to voice concerns over the inventory and availability of amphibious shipping (naval shipyard issues) as well as the availability of ready basic aircraft (RBA) on our flightlines (aviation depot issues.) Our current budget puts additional fiscal strain on the already reduced capabilities and negatively impacts our warfighting readiness, particularly in responding ("surge") with home station forces.

General GOLDFEIN. The Fiscal Year 2017 President's Budget Weapon Systems Sustainment depot maintenance baseline funding maintains the delicate balance between capability, capacity and readiness. This level of funding supports the most critical aircraft depots/engine overhauls with no anticipated maintenance backlog.

24. Senator INHOFE. All, what is the current status of investment across your depots, shipyards and ammunition plants? Is it meeting mandated capital investment of 6 percent as described in 10 USC 2476?

General ALLYN. The Army has budgeted to meet the 6 percent investment requirement for fiscal year (FY) 2016 and fiscal year 2017 as reflected in the Fiscal Year 2017 President's Budget request. The Army is committed to continuing to invest in the Organic Industrial Base in accordance with 10 U.S. Code 2476.

Admiral HOWARD. The Department of the Navy will again exceed the mandated capital investment of 6 percent across our shipyards and depots described in 10 USC 2476 with a 7.1 percent total investment in fiscal year 2017. This equates to $376.9 million at Naval Shipyards, $114.3 million at Fleet Readiness Centers and $15.7 million at USMC depots.

General PAXTON. Based on the Fiscal Year 2017 President's Budget (PB), the current status of the investment for the Marine Corp (MC) Depot is as follows:

PB17	FY15	FY16
% Executed/Projected	5.9%	3.9%

The MC Depot is not meeting the mandated capital investment of 6 percent.

In accordance with 10 U.S. Code § 2476, subsection (a)—Minimum capital investment for certain depots, it states that "each fiscal year, the Secretary of a military department shall invest in the capital budgets of the covered depots of that military department a total amount equal to not less than six percent of the average total combined maintenance, repair, and overhaul workload funded at all the depots of that military department for the preceding three fiscal years."

While the MC Depot strives to meet the 6 percent threshold at the command level through multiple operational variables and investment into modernization of equipment and facilities, the investment may fall below the goal due to the relatively smaller Depot operation as compared to other services. The 6 percent minimum capital investment for covered depots is mandated at the Department of the Navy (DON) level.

General GOLDFEIN. The Air Force has a robust capital investment program that provides the depot complexes equipment, minor construction, and software for new workloads while modernizing and recapitalizing aging equipment and facilities. Yes, the Air Force has always met the mandated capital investment of 6 percent as described in 10 USC 2476, and projects continued compliance. For example, in fiscal year (FY) 2017, the procurement equipment investments will support the activation of the organic depots to support F–35 and KC–46A. In fiscal year 2016 and fiscal year 2017, MILCON investments support the KC–46A depot bed-down at the Oklahoma City Air Logistics Complex.

25. Senator INHOFE. All, we are working with OSD to help facilitate the timely hiring civilians at our depots, shipyards and ammunition plants. The Office of Personnel Management has a goal of 80 days which is unacceptable. What is the impact on readiness if we cannot hire require civilian personnel into our depots, shipyards and ammunition plants in a timely manner?

General ALLYN. Readiness can be negatively impacted. Our workforce however is committed to their mission and has continuously sustained the warfighter as required. Through use of surges in the workforce, such as five day/ten hour work week, three shifts per day, or limited use of contract services, our depots', arsenals', and ammunition plants' workforce can flex to meet the readiness requirements of

our Army. Hiring managers will continue to work through the federal hiring process to strive to get the right worker into the right job in a timely manner.

Admiral HOWARD. Navy readiness is not significantly impacted by the length of time needed for civilian hiring actions at Navy aviation depots and shipyards. These activities routinely plan hiring well in advance of workload increases due to the extensive training required for their unique and highly skilled workforce. While not directly impacting readiness, the Navy is working on reducing the hiring timelines at the aviation depots and shipyards to get new personnel into training and the production workforce faster. Further, the Department of the Navy has seen significant improvements in the hiring process through the concentrated joint efforts of the Human Resources and Comptroller communities in the last two years. Operation Hiring Solutions, which expands best practices and streamlines processes throughout the Department, is improving our ability to get people onboard more efficiently. The aviation depots and shipyards are benefiting from these programs as well.

General PAXTON. Although the goal of OPM is 80 days, our analysis shows that the actual wait time for hiring civilian employees and having them in place averages 149 days in the Civilian Human Resource Office—Southeast (CHRO–SE) Region. This excessive wait time has a significant impact to both production and financial execution goals. The depots are Working Capital Funded (WCF) activities, which must generate revenue through the execution of Direct Labor Hours (DLH) to recover costs. Based on the standard 80 day wait time, the depots would lose approximately 55 productive days waiting for a civilian to be hired and report to work. An 80 day wait time equates to $40K in revenue and 400 DLH's that would be lost per employee and with the hiring process taking almost twice that amount of time, the impact is even greater.

To offset the wait times for hiring civilian employees, the depots currently leverage labor contracts to fill skill gaps and civilian workforce deficiencies as a temporary mitigation strategy.

General GOLDFEIN. As of March 21, 2016, there were 1,762 vacant positions in critical skills within the Air Force Sustainment Center (AFSC). AFSC expects the critical need to exist until March 31, 2017.

Immediate shortages with extensive lag times in hiring, particularly in critical aerospace skills, drives high overtime rates and creates the inability to meet delivery deadlines. The unfinished work must transfer into the next fiscal year. As the workload moves to the out years, it directly impacts the ability to support warfighter needs within required timelines. The inability to meet AFSC commitments ultimately leads to the potential of Air Logistics Complex customers seeking other sources to perform the necessary workload.

Air Force Materiel Command (AFMC) is working closely with the Air Force Personnel Center to break down barriers that result in lengthy hiring timelines. Significant progress has been made, and AFMC is continuing to look for other opportunities to improve.

PILOT SHORTFALL

26. Senator INHOFE. All, are each of your services experiencing shortages in the pilot manning?

Admiral HOWARD. Our aggregate pilot inventory meets current authorizations. However, pilot manning among lieutenant commanders (O4) in three carrier-based fixed wing type/model/series aircraft, specifically the Electronic Attack (VAQ), Strike Fighter (VFA) and Early Warning (VAW) communities, is projected to decline over the next five years. This will necessitate increased incentive power to mitigate a critical pilot inventory shortfall at the department head level. Accordingly, we support the Administration's proposal to increase statutory caps on aviation pays to ensure we retain a competitive edge as we work to retain highly-trained and experienced pilots.

General PAXTON. No. On average, Marine Aviation is not experiencing pilot shortages. Within HQMC Aviation, various metrics are used to track pilot manning. Some metrics measure by rank/grade and others by duty location (e.g. fleet squadrons, supporting establishments, training commands). In the majority of our Type/Model/Series (T/M/S), these metrics show our target goals are exceeded; however, in our newer T/M/S (e.g. F–35 and MV–22), deficiencies are shown. This is due in part to wait times within Chief of Naval Air Training (CNATRA) training pipelines to build up our newer T/M/S inventories. Another area of deficiency is shown in our junior officer grades/ranks within our operational squadrons, specifically F/A–18. That was primarily due to a lack of inventory of available F/A–18 aircraft to train and meet operational commitments. We have prioritized all our Fleet Replacement Squadrons (FRS) training squadrons for available aircraft and now are producing

the numbers we need, but in some year groups we remain short of company grade officers in F/A–18.

General GOLDFEIN. Yes, the Air Force is experiencing a shortage of pilots. Currently the Air Force is 641 pilots short of our total requirement, and expecting to be over 750 pilots short by the end of fiscal year (FY) 2016. Over the last three years, we have noticed a decreasing trend in pilot retention. Since fiscal year 2014, yearly losses have exceeded the Air Force's annual production capacity. While many of the separating pilots have affiliated with the Reserve Components (RC), the RC is also experiencing a pilot shortage in full time positions. Overall, the pilot manning shortage is most critical in our fighter community, where we are more than 511 pilots short as of the end of fiscal year 2015, and the trend is worsening. The Air Force expects to be over 700 fighter pilots short by the end of fiscal year 2016.

27. Senator INHOFE. All, are you starting to see any indications of an increasing number of military pilots leaving your services?

Admiral HOWARD. Aggregate Navy pilot retention has declined in each of the last three years against the backdrop of an improving economy and increased airline pilot mandatory retirements. Recent studies forecast that, based on industry growth and mandatory retirements, airline and cargo pilot hiring-demand will grow to 4,000 pilots per year by 2020. A 2006 Center for Naval Analyses study postulated that for every 1,000 airline hires, Navy would experience a 2.4–2.6 percent decline in pilot retention.

General PAXTON. Not at this time, but we anticipate we may in the near future. Statistical data shows a 26-year average attrition rate at 7.2 percent for marine aviators and fiscal year 2015 attrition rates were below the 26-year average. However, we have reduced pilot populations due to our drawdown, and the growing commercial and airline shortfalls will drive a demand for pilots from the military. The Bureau of Labor Statistics (BLS) indicated on 17 December 2015 a 7 percent (faster than all occupations) pilot demand until 2024 due to the current pilot population aging out. BLS noted "military and experienced pilots will have a [hiring] advantage over applicants whose flight time consists only of small piston-driven aircraft." Airline industry insiders are now hiring Tiltrotor (V–22) pilots, especially given the FAA changes in the wake of the Colgan air crash and this increases the USMC's aviation population at risk.

We believe our current lowered state of aviation readiness (ready basic aircraft, RBA) and resultant reduced flying hours (flying hours program, FHP) combined with industry's pilot demand will generate a retention problem. Although our statistics, looking backward, indicate we are within historic norms, the aviation industry demand has the potential for reducing our pilot population below required levels. On a side note, we are also watching and concerned about retention of our highest qualified aviation maintenance Marines. They too are in high demand in the commercial world. We will continue to monitor closely to ensure we don't re-learn the lessons in the 1990's where pilot shortfall required Navy pilot volunteers to change service to the USMC because bonuses came too late.

General GOLDFEIN. Yes. Over the last three years we have noticed a decreasing trend in pilot retention and the Air Force is experiencing a shortage of pilots. Currently the Air Force is 641 pilots short of our total requirement, and expecting to be over 750 pilots short by the end of fiscal year (FY) 2016. For fighter pilots, fiscal year 2014 was the largest single year drop in Aviation Retention Payment (ARP) take rate in 14 years. This corresponds to the last major significant airline hiring in 1999–2000. Overall, the Air Force desires retention bonus take rates between 65–70 percent. For the past 2 years (fiscal year 2014 and fiscal year 2015), we have experienced retention bonus take rates between 55–59 percent, and the trend is worsening. To date, the Air Force has experienced as many separations in the first six months of fiscal year 2016 as it did in all of fiscal year 2015.

28. Senator INHOFE. All, what steps are each of your services taking?

Admiral HOWARD. Navy applies both monetary and non-monetary incentives to retain pilots who possess the requisite qualifications and demonstrated leadership to maintain our preeminent operational aviation force. Non-monetary incentives include graduate education opportunities, spouse co-location, geographic assignment stability, and participation in the Career Intermission Program. Monetary incentives include a monthly Aviation Career Incentive Pay (ACIP) and Aviation Career Continuation Pay (ACCP). ACCP is comprised of two separate bonuses. The first is targeted at mid-grade Active Duty aviators, and designed to retain them in the Navy to serve as squadron department heads. The second, a command retention bonus, is designed to retain squadron commanding officers through 22 years of commissioned service (YCS).

As we work to retain the number of pilots needed to meet operational requirements and against the backdrop of increasing commercial aviator hiring and compensation, we support the Administration's current proposal to increase ACIP and ACCP statutory caps to ensure we retain a competitive edge.

General PAXTON. While on average, our current inventory of pilots is sufficient as we have already described in Questions 26 and 27, we are still concerned about our pilot populations. Given the overall shortfalls in Marine Aviation readiness, we have seen a reduction of flight hours per pilot across every platform. This long term readiness problem and the career opportunities in the commercial aviation sector, give us pause. While we do not see broad retention issues today, we are concerned that this could become a problem in the future and do not want to get caught behind it. Headquarters Marine Corps actively conducts surveys to seek insights into current motivations of our pilots, their intentions, and perceptions. This enables us to be proactive and ensure we sustain the pilot population depth and breadth, and ensure that corrective action, if needed in the future, will be applied in a timely manner.

General GOLDFEIN. In September 2015, General Welsh initiated the Fighter Enterprise Redesign, an Air Force effort investigating initiatives to reduce fighter pilot requirements and increase the production and retention of pilots. Regarding requirements, the Air Force is reviewing developmental education policies to determine whether changes in existing policies can provide some relief to current requirements. With respect to production, the Air Force is currently reviewing available options for standing up additional fighter pilot training capacity. To prepare for this, we assessed additional maintenance manpower in fiscal year (FY) 2015 and 2016 to increase our ability to produce experienced pilots, as well as increase combat readiness. In an effort to retain more pilots, the Air Force is looking at addressing high operations tempo, home station quality of life, and Total Force integration. Lastly, regarding retention, we are exploring improvements to the officer developmental process, and developing a more agile and accommodating assignment management policies to help retain skilled pilots. Additionally, in the Fiscal Year 2017 President's Budget, the Air Force advocated for increases in Aviator Retention Pay. If commercial airline hiring and pay increases continue beyond current levels, the Air Force may need to revisit additional bonus increases.

QUESTIONS SUBMITTED BY SENATOR JEANNE SHAHEEN

COMBAT UNIFORMS

29. Senator SHAHEEN. Section 352 of the fiscal year 2014 NDAA established that it is DOD policy to eliminate the fielding of service-specific combat uniforms in order to adopt and field a common combat uniform for all members of the Armed Services. This committee has always strived to improve efficiencies and the multitude of service-specific combat uniforms even made the top of GAO's list of duplicative DOD issues not long ago. Given this committee's potential look at Goldwater-Nichols reform, the combat uniform issue has potential for improvement.

Given the DOD policy and the fact that the Military Services all wore the same combat uniform prior to 2002, what is the status of the Military Services working together on the Joint Clothing and Textiles Governance Board to develop and field a joint combat uniform?

General ALLYN. The Army's ongoing fielding of Army Combat Uniforms in the Operational Camouflage Pattern has been in full compliance with section 352, with the enactment of the Fiscal Year 2014 National Defense Authorization Act.

The Services have consistently worked together on the Joint Clothing and Textiles Governance Board (JCTGB) to address the topic of a common combat uniform. The Army also participates in the JCTGB Advisory Group and the Cross-Service Warfighter Equipment Board (CS–WEB). The JCTGB Advisory Group meets two to four times a year to discuss policy and to review items to be presented at the JCTGB. The CS–WEB meets three to four times a year and is the forum where the Services brief current and planned development efforts and opportunities for collaboration.

Admiral HOWARD. The Navy participates as a member of the Joint Clothing and Textiles Governance Board (JCTGB); the next JCTGB meeting is planned for June 2016 and the topic of a joint Service combat uniform is on the agenda. The Navy is in compliance with section 352 of the fiscal year 2014 NDAA as well as DODI 4140.63, Management of DOD Clothing and Textiles (Class II). These documents provide the current guidance for combat uniforms for acquisition and procurement that the Services must follow. Combat uniforms have evolved since 2002 with the

Services' missions and operational responsibilities. The Navy ensures personnel safety by utilizing uniforms appropriate to the theater and environment. As an appropriate efficiency measure, Navy Service personnel adopt the Services' requisite combat uniform when assigned as Individual Augmentees to Army or other Service units.

General PAXTON. Section 352 of the fiscal year 2014 NDAA contained a provision which stated, "The Services are not prohibited in the continued fielding or use of pre-existing service-specific combat uniforms as long as the uniforms continue to meet operational requirements." Since the establishment of the provisions contained in this section, the Marine Corps has not had any changes to the requirements of our current, service developed and patented combat uniforms as they continue to meet our operational needs. The Marine Corps participated in the drafting of Joint criteria via the Joint Clothing and Textiles Governance Board for a future combat utility uniform. The Marine Corps continues to fully cooperate and share with all of the other services in the pursuit of technology improvements for current and future combat utility uniforms.

General GOLDFEIN. Threats to our Military Service members and the roles they are required to assume have evolved since 2002. For example, airmen have assumed joint service ground support roles that exposed them to what two decades ago would have been considered uncommon threats. As a result, the Air Force recognized the need for fire retardant, ground combat uniforms, and partnered with the Army in October 2010. The Air Force adopted the Army's Operation Enduring Freedom Camouflage Pattern combat uniform as a joint service solution that minimized those emerging threats to our airmen.

The Air Force continually supports collaborative efforts and has representatives, who routinely act as advisors to principal members of the Joint Clothing and Textiles Governance Board, as well as its subsidiary, the Cross-Service Warfighter Equipment Board (CS–WEB).

QUESTIONS SUBMITTED BY SENATOR MAZIE HIRONO

READINESS

30. Senator HIRONO. Admiral Howard, you stated in your written testimony that full recovery of the material readiness of the Fleet is likely to extend beyond 2020. What are the implications of a Fleet that won't achieve readiness for another four years at the least? What areas are suffering from a lack of support? Which areas are most concerning to you?

Admiral HOWARD. The President's Budget for fiscal year 2017 provides sufficient funding to needed areas for continued support of our readiness recovery efforts. My concerns remain having stable funding, improvement in on-time execution of ship and aviation depot maintenance, and steady-state operations. The main implication of recovering full readiness beyond 2020 is the impact to our contingency force posture during the readiness recovery period. In the near term, we are confident in our ability to provide presence, but surge capacity has been diminished.

31. Senator HIRONO. General Goldfein, your written testimony stated that the Air Force is "currently one of the smallest, oldest, and least ready forces across the full-spectrum of operations in your history." Can you please explain the implications of reduced readiness and the impacts on morale and retention? Does the Air Force have a plan to increase readiness in future years?

General GOLDFEIN. Reporting indicates that the longstanding, very high operational tempo has negatively affected Air Reserve Component and Active Duty retention and invariably a reduction in combat capability. One example involves the departure of 60 air refueling crews from our Reserve Component in the last eight months, which we attribute partially to the high ops tempo our personnel endure.

The Air Force continues to pursue its readiness recovery goal of 80 percent ready. Unfortunately, the conditions required to rebuild readiness have not yet been set. Demand for Air Force capabilities has created an environment where readiness is being consumed faster than we can build it. The Air Force's plan provides the resource foundation (starting with end strength increases) from which to begin rebuilding readiness in fiscal year 2020, if deployment conditions improve and global force management reforms show promise in achieving this end. We will regularly analyze actual conditions and adjust the resource plan accordingly, but the readiness enterprise depends on consistent, predictable funding.

32. Senator HIRONO. General Goldfein, you mentioned in your written testimony that our adversaries are challenging our competitive advantages and closing the gap with regard to capability. What must the Air Force do to regain our competitive advantages? What specific areas require additional attention?

General GOLDFEIN. Our potential adversaries are keenly aware of the importance of air superiority to our Nation's way of war. The threats we will have to face continue to evolve in technology and complexity. Potential adversaries are acquiring advanced fighters on par with or better than our legacy fleet, developing sophisticated and networked early warning radar surveillance systems, and fielding surface to air missile systems with increasing range and lethality.

To address these challenges, we must improve capability and capacity to allow us to maintain our competitive advantage across the full spectrum of operations and readiness. Investment in the re-capitalization and modernization of our fighter and bomber fleets, incorporating improvements in Electronic Warfare, advanced weapons inventory, cyber security, and interoperability will allow us to operate and survive in the higher threat environments. In addition, we are reviewing options to provide for affordable and sustainable rotational capacity that can help us preserve readiness across the full spectrum of operations. Lastly, we must accelerate the implementation of acquisition reform in order to increase our agility and responsiveness in order to develop and field new technologies to counter rapidly advancing threats.

ENERGY

33. Senator HIRONO. General Allyn, Admiral Howard, General Paxton, and General Goldfein, the national security of our country is greatly dependent on the implementation of energy security efforts. By decreasing our energy footprint, we enable our forces to more efficient and lessen our dependence on fuel. Can you please provide an update on how the fiscal year 2017 budget reflects your efforts to reduce consumption, use alternative clean sources and increase U.S. energy security?

General ALLYN. All Army energy investments are focused on enhancing mission effectiveness, building resiliency of our energy infrastructure, and containing or reducing costs.

To reduce consumption and increase efficiency on Army installations, the Army's fiscal year (FY) 2017 budget request is for $164 million in energy efficiency improvements. In addition to this amount of direct investment, the Army plans to partner with the private sector for an additional $180–$220 million in investment through energy savings performance contracts (ESPCs). The Army is the largest user of ESPCs in the Federal Government. Since 1992, we have leveraged over $2.2 billion in third party investments for energy efficiency improvements, including over $500 million in the last two years alone. Since 2010, the Army has saved more energy through ESPCs than is consumed in a year at Fort Bragg, our largest installation.

In response to risks posed to our vulnerable energy grid, the Army's budget request reflects our efforts to improve the resiliency of Army installations and increase energy security through the use of on-base renewable sources of energy. Our fiscal year 2017 budget requests funding for the Office of Energy Initiatives (OEI), which helps to plan and develop third party-financed renewable energy projects. The Army currently has 159 mega-watts (MW) of renewable energy generation capacity installed on our installations, of which 40.5 MWs of this amount was installed in the past twelve months. These projects produce power equivalent to 12 percent of the Army's total consumption. The Army is developing a further 400MWs of projects, representing over $800 million in private sector investment. All of these projects are at or below conventional electricity costs, and are expected to save the Army $250 million.

The Army's fiscal year 2017 Operational Energy (OE) budget request of $1.28 billion recognizes that improved use of energy enhances mission capabilities. The bulk of this request, $1.084 billion, is for Equipment Procurement, which funds energy efficient equipment that will reduce physical and logistical burdens on our soldiers. A portion of this budget will fund the Army's Improved Turbine Engine Program, which will develop a new engine for the medium helicopter fleet with 50 percent more power, 25 percent improvement in fuel efficiency, 35 percent decrease in maintenance costs, and 20 percent longer engine life.

Admiral HOWARD. Energy security is fundamental to executing Navy's mission both afloat and ashore. Reliance on petroleum-based fuels poses critical strategic vulnerabilities and creates operational constraints. The Navy's investments in energy efficiency and alternative fuels increases energy security by extending range and endurance, shortening the length of the logistics tail, and reducing supply chain vulnerabilities.

I. Operational Energy Investments

Navy's PB17 investment in Operational Energy initiatives aims to enhance combat capability and effectiveness through innovative technologies, operational procedures, culture change initiatives, and the qualification of advanced alternative fuels for Fleet-wide use. These initiatives focus on strengthening our Naval Power and providing the warfighter with the tools to continue taking the fight forward. Energy efficient technologies and procedures enhance our warfighting capability by extending our combat range, 'on station' time, and mission endurance, while also netting some savings.

II. Shore Energy Investments

Navy is making investments to reduce energy consumption, increase the use of alternative energy resources and improve energy security for our installations. To reduce our energy consumption, Navy is investing in facility upgrades, smart energy analytics, and utility system repair projects. These investments help improve energy security, energy management and provide advanced capabilities like demand response and load shedding.

Navy remains highly committed to improving our energy security posture. We are focused on improving our utility infrastructure backbone of our installations and ensuring reliable, resilient power for our mission-critical assets. In addition to improving resiliency and reducing consumption, Navy is working closely with its private sector partners for advances in this area.

General PAXTON. The Marine Corps is addressing operational energy from multiple avenues in order to holistically develop sustainable expeditionary solutions. These avenues include analysis of operational energy risk to identify current and future capability gaps, development of technology solutions, and adoption of changes to behavior at both the operational and tactical level to better use the energy we are consuming. Specifically, we will accomplish this by:

- Operational Energy Risk Analysis—USMC is conducting wargaming and experimentation to inform future capability needs and assess projected shortfalls in these capabilities. USMC is also coordinating with geographic combatant commanders to conduct exercises and OPLAN energy risk analysis to identify energy-based risks to war plans and assess possible mitigation options. Insights from these exercises and analyses will inform planning and enable more effective use of energy and maximize the operational effectiveness.
- Advanced Technology Development—USMC is working closely with the Research and Development offices within Department of Navy, Department of Army, and Office of the Secretary of Defense to develop technology solutions to address expeditionary energy capability gaps. We are pursuing solutions in the areas of energy efficiency, energy harvesting, energy storage, and consumption management. Technologies include advanced vehicle power train systems, high performance photovoltaic energy generation, wearable kinetic energy harvesting, and sensors that monitor energy usage.
  - o The Office of Naval Research Fuel Efficient Medium Tactical Vehicle Replacement (FEMTVR) program is developing the technology to improve fuel efficiency of the Marines' most ubiquitous truck. FEMTVR will demonstrate efficiency gains of over 15 percent which equates to the ability to drive over 90 miles further on a tank of gas.
  - o The Joint Infantry Company Prototype (JIC–P) is a wearable energy system that integrates human borne energy harvesting with personal power management and central power storage. JIC–P will increase the electrical energy sustainment capability of dismounted warfighters in austere environments and extend the time between resupply from 36 hours to multiple days.
  - o The Energy Command and Control project is a system of networked tactical fuel consumption, distribution, and capacity sensors combined with analytics that provides energy information to the MAGTF common operational picture. This actionable information is critical for planning at the operational level and has been demonstrated to enable a Marine unit to travel 190 miles further on the same fuel.
- Behavior Change—While the development and deployment of advanced technology to reduce energy use is required, it alone is not sufficient to maximize combat advantage and meet USMC goals. Technological capabilities must be combined with changes in behavior.
  - o The sensors being developed in the Energy Command and Control project to monitor energy usage will be used to provide real-time feedback to operators on their fuel usage enabling them to reduce fuel consumption by changing their driving habits (i.e. idle time).

- o The USMC is conducting a behavioral analysis to discover and document energy related behavior and identify behavior modification options that could significantly increase operational reach of Marines by reducing ground vehicle fuel usage. In addition, the operational energy risk analyses are identifying possible changes in doctrine at the operational level that will reduce energy-related risk to completing the mission.

General GOLDFEIN. The Air Force is focused on enhancing mission assurance through energy assurance, and is optimizing our capabilities in order to maximize combat readiness and reduce mission risks. As part of its approach, the Air Force is aggressively pursuing clean facility energy projects, which can serve as critical investment building blocks to resilient energy systems, and is looking at both direct and third-party financing options to develop energy projects and optimize its energy demand. In February 2016, the Air Force established the Air Force Office of Energy Assurance (OEA), a central program office dedicated to the development, implementation, and oversight of privately-financed, large-scale renewable and alternative energy projects. The OEA, which will leverage partnerships with the Army and Navy, will take an enterprise-wide approach to identify and facilitate energy projects that provide resilient, cost-effective, cleaner power to Air Force installations.

The Air Force is also investing in a broad spectrum of operational energy initiatives impacting the way airmen behave, weapons platforms are maintained and modernized, and processes are enhanced. Improving the energy productivity of our weapon systems and installations will increase capabilities, provide the Air Force with strategic energy agility, and mitigate the mission, geopolitical, financial, and environmental risks posed by a reliance on specific resources. Included in the fiscal year 2017 budget request is more than $600 million for projects that will improve current and future operational capabilities. One such project is the work the Air Force is doing with advanced adaptive engines. This research and development effort may provide up to 30 percent more range, 25 percent better fuel efficiency, and a 10 percent increase in thrust. The Air Force is also looking at process improvements. For example, Air Mobility Command has implemented multiple process improvements, such as smart cargo loading, which have resulted in a cost savings of $500,000 per day. These efforts are leading to improved capabilities for our warfighters and have improved aviation energy productivity by 6 percent over the last five years.

FUNDING

34. Senator HIRONO. General Allyn, you mentioned in your written testimony that the fiscal year 2017 Army Budget base request is $1.4 billion less than the fiscal year 2016 enacted budget. What specific areas suffer from this lesser budget number? How does this impact your readiness and ability to execute your missions?

General ALLYN. In the near term, the fiscal year (FY) 2017 budget builds operational readiness for potential major combat operations while also ensuring deploying units are ready for ongoing contingency operations. However, because it is $1.4 billion less than fiscal year 2016 enacted, the prioritization of Army readiness comes at the expense of modernization and installation sustainment. The Army is forced to reduce investments in procurement, purchasing lower quantities of equipment than previously planned. Funding for facility sustainment accounts is also reduced, causing an increased backlog in facility maintenance. The funding levels constrain the Army's ability to achieve the desired balance between near term readiness for the current environment, and long term modernization required for future security challenges. Without additional funding, the Army will continue to make trade-offs to best implement the defense strategy and address emerging requirements with limited resources available.

MODERNIZATION

35. Senator HIRONO. General Allyn, Admiral Howard, General Paxton, and General Goldfein, modernization and readiness are often at odds with each other: Funding that is used for readiness, which is an immediate need, is often used at the expense of modernization. Can you talk about the importance of modernization in your respective commands? Are you finding a balance between modernization and readiness? Which areas requiring modernization are most concerning to you?

General ALLYN. You are correct that we have had to delay modernization in order to support near-term readiness because of budget reductions. We have been doing so since 2011, and the longer we have to stay at reduced modernization levels, the farther behind we will fall to future adversaries. A trained Army requires modern equipment to win.

While we are deliberately choosing to delay several modernization efforts to stay within our budget constraints, we do have priorities: Aviation, the Network, Integrated Air Missile Defense, Combat Vehicles, and Emerging Threats. In the area of emerging threats, we are looking for innovative technologies focused on Active protection systems (both ground and air), aircraft survivability, future vertical lift, directed energy weapons, cyber, and integrated electronic warfare.

Admiral HOWARD. Modernization of our fleet that builds on current capabilities as well as introduction of new systems that enhance our future capabilities is vitally important to the navy as we seek to maintain our robust, power projection advantage over our adversaries' ever improving A2/AD posture. Our investment in modernization also aims to achieve Defense Planning Guidance's tenet of developing a smaller yet highly capable ready force that meets future, emerging challenges. Achieving this objective through smart investments also enables the navy's balanced superiority in Air, Surface and Submarine warfare areas over our adversaries in a complex, maritime threat environment. To that end, we are continuing in our commitment to modernization through investments in priority programs like the Joint Strike Fighter, legacy F/A–18 service life extension, P–8 procurement, DDG/CG modernization, Ohio Replacement Program and the development of unmanned systems.

Finding the balance between modernization and readiness is a challenge on which the navy is principally focused in a pressurized budget environment. Investments we have made in readiness over the last couple of budget cycles have raised capacity in naval shipyards and aviation depots. However, we have also experienced requirements increase resulting from continued high operations tempo, increased need for combating cyber security threats, costs associated with prepositioning forces forward and additional training requirements for newly hired artisans in our depot, maintenance activities. To achieve the balance between modernization and readiness in this austere environment, the navy is looking into innovative solutions beyond just financial investments. One of the ways is through achieving high velocity learning in every level of the naval service. This concept is outlined in the CNO's "Design for Maintaining Maritime Superiority" and leverages on building a culture of innovation and creativity and institutionalizing the rapid adoption and implementation of best concepts, techniques and technologies to achieve personal and organizational performance objectives without additional resources. Another example of innovative solutions is our approach to making smart investments in modernization. More than we have in the past, the navy is taking a systematic approach by analyzing every phase of the kill chain to focus on most effective delivery methods and investing in most vulnerable phases to achieve kill chain wholeness. This methodology is allowing the navy to make the most out of our modernization dollars and move toward balancing readiness and modernization.

One concern the Navy has with modernization is maintaining continuity of capabilities in the near-term (current FYDP) through the long-term (into 2030 and beyond) to sustain superiority in all naval warfare areas. In some instances, on a case-by-case basis, the navy will have to make risk-based, priority decisions to either lean toward near-term capabilities over the long-term or vice versa. In terms of modernization investment areas that are of most concern, the navy is currently placing emphasis on 15 key warfare and 2 force generation mission areas including the undersea leg of the strategic deterrent triad, which is foundational to our survival as a nation, the defense against long-range precision strike and cyber resiliency, to name a few.

General PAXTON. We must constantly balance between operational readiness and institutional readiness; between capability and capacity; between current and future operations; between steady-state and between surge; and between low-end and high-end operations as well as the training that goes with them. We constantly seek these balances as we face simultaneously increasing and varied demands from the combatant commanders.

In our current challenging fiscal environment we are struggling to maintain all of those balances. The Marine Corps is no longer in a healthy position to generate current readiness and simultaneously reset all of our equipment while sustaining our facilities and modernizing to ensure future readiness. We have consciously and properaly prioritized near term readiness in order to meet COCOM demand. We have continued to provide the geographic combatant commanders with operationally ready forces to execute all of their assigned missions, not the full spectrum of possible operations.

In addition to this, operational readiness is generated at the cost of our wider institutional readiness. This year I must again report that approximately half of our non-deployed units are experiencing some degradation in personnel, equipment, or training readiness. We continue to prioritize modernization for the most important

areas, particularly the replacement of aging aircraft and amphibious assault vehicles, but we are deferring other needs. Our installations continue to be the bill-payers for today's readiness, putting the hard-earned gains from the past decade and much-needed military construction further at risk.

While our deployed forces continue to provide the capabilities demanded by the combatant commanders, our capacity to do so over time and in multiple locations remains strained. Our deployment-to-dwell ratio (currently 1:2 average) continues to exceed the rate that we consider to be sustainable in the long term, 1:3. The strains on our personnel and equipment are showing, particularly in aviation, communications, and intelligence communities.

We have already been forced to reduce the capacity available to the combatant commanders by reducing the number of aircraft assigned to several of our squadrons, e.g. F/A–18s and those of the deployed MAGTFs like SPMAGTF–Crisis Response Africa. We expect to continue those reductions throughout 2017. While we are able to maintain steady-state theater security cooperation, build partnership capacity, and sustain mil-to-mil engagements, our ability to surge is increasingly challenged.

Furthermore, a return to BCA-level spending/full sequestration would significantly exacerbate institutional readiness imbalances. More tradeoffs would be made in acquisitions of needed equipment, essential training, living and work spaces, and end strength to protect the Marine Corps' performance of its statutory obligations. Sequestration impacts on key modernization programs will have catastrophic effects on achieving desired capabilities to defeat emerging threats and will place an unacceptable burden on legacy ground combat tactical vehicle (GCTV) programs such as the Assault Amphibian Vehicle (AAV, 40 + years old), the HMMWV (out of productions since 2012), The Light Armored Vehicle (LAV, average age 33 years), and M1A1 tank (average age 26 years).

These challenges in balancing readiness and modernization provide context for today's budget environment. Your Marine Corps remains ready to answer the nation's call, but with no margin for error on multiple missions in which our indicators and warning are diminished, our response time is strained, and within which failure is not an option.

General GOLDFEIN. Our fiscal year (FY) 2017 budget prioritized capacity and readiness over modernization. We are currently facing a modernization bow wave. The modernization efforts in the Air Force are critical to our ability to gain and maintain control of the air and space domains to support the joint force. With the proliferation of advanced technologies/capabilities, the gap between our capabilities and those of potential adversaries is closing.

In the mid-term (fiscal year 2022–2027), the Air Force will be unable to meet modernization requirements, recover from below 50 percent readiness levels for full spectrum conflict, and maintain National Defense Authorization Act-required force capacity. The two biggest areas of concern to the Air Force are the nuclear enterprise and our fighter force. With the recapitalization of the nuclear enterprise and our conventional fighter force all taking place in the 2020s, the Air Force will not be able maintain readiness and capacity within current fiscal constraints if the present strategic environment changes. While we are able to meet operational requirements in the present strategic environment, this will all change if there are increased operational demands put on the Air Force; especially if the current fiscal environment does not change.

REBALANCE

36. Senator HIRONO. Admiral Howard, in terms of the Rebalance and given our current threat environment and the actions of China and North Korea in the Asia-Pacific, do you see Hawaii as a strategically important area in terms of readiness? How important is it to have an Active and ready force prepositioned in Hawaii?

Admiral HOWARD. Without question Hawai'i's geo-strategic location is vitally important in terms of readiness due to the tyranny of distance from the West Coast to the distant Indo-Asia-Pacific operating areas. Located 2000 miles closer to these operating areas, Hawai'i enables the Navy to stay on station longer and respond faster. These great distances from CONUS underscore how indispensable Hawaii is to Navy's readiness. Hawai'i's location and defense infrastructure offset this tyranny of distance.

Having an active and ready Naval force prepositioned in Hawaii is an essential element of Navy's readiness. Hawaii is home to U.S. Pacific Fleet and the preponderance of Navy's non-CONUS based ships, and is ideally suited to support the Asia-Pacific rebalance.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, APRIL 5, 2016

U.S. SENATE,
SUBCOMMITTEE ON READINESS
AND MANAGEMENT SUPPORT,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

THE STATE OF PUBLIC SHIPYARDS TO MEET CURRENT MISSION NEEDS AND INVESTMENT STRATEGIES

The subcommittee met, pursuant to notice, at 2:31 p.m. in Room SR–222, Russell Senate Office Building, Senator Kelly Ayotte (chairman of the subcommittee) presiding.

Committee members present: Senators Ayotte, Fischer, Rounds, Ernst, Shaheen, Hirono, and Kaine.

OPENING STATEMENT OF SENATOR KELLY AYOTTE, CHAIRMAN

Senator AYOTTE. Good afternoon. This hearing of the Subcommittee on Readiness and Management Support will come to order.

I want to thank Ranking Member Senator Kaine for his continued leadership on defense issues and eagerness to work together in a bipartisan manner on behalf of our men and women in uniform.

I am very pleased to have our witnesses here today. We are joined this afternoon by Vice Admiral William Hilarides, Commander of the United States Naval Sea Systems Command; and Vice Admiral Dixon Smith, Commander of United States Navy Installations Command. I want to thank both of you for being here and for your leadership and service to the country.

As we prepare for the committee markup of the National Defense Authorization Act, the focus of today's hearing is on our Nation's four public shipyards: Norfolk, Pearl Harbor, Puget Sound, and the Portsmouth Naval Shipyard. These four public shipyards and the skilled Department of Defense civilians who work at these shipyards are major national security assets for our Navy and our Nation, performing mission-critical depot and intermediate-level maintenance, modernization, and repair on our Nation's naval fleet.

In order to protect our economic and national security interests, our Nation needs the world's most capable, well maintained, and

combat-ready fleet. To ensure we have such a fleet, our Nation looks to the Navy and the Navy looks to the thousands of Department of Defense skilled civilian artisans who work at our public shipyards.

To fulfill this critical national security role, our public shipyards must have a fully trained and supported workforce that is appropriately sized, as well as modernized infrastructure, including dry docks, piers, production shops, and wharfs. That is what more than 33,000 skilled shipyard workers deserve and what our national security interests require.

I have been fortunate to witness the excellence of our shipyards at the Portsmouth Naval Shipyard, where many of my constituents work. The week before last, I was privileged to attend and speak at the Portsmouth Naval Shipyard's trade apprentice program and worker skills progression program graduation. I was so impressed by the comprehensiveness of the training, as well as the quality of the more than 180 individuals who graduated from the program. The graduates actually logged thousands of hours of on-the-job training, trade theory and academic training, honing their trade and sharpening their skills.

Portsmouth is known for programs like this and others that promote labor-management collaboration, empower the workforce, and create a culture that values high standards and continuous learning. In fact, this subcommittee highlighted these efforts and Portsmouth's dedication to improving its workforce in a hearing that we had before this committee last July, and in that hearing, Mr. Paul O'Connor testified at the hearing. I am so pleased to see Paul here today in the audience.

In part because of these programs, Portsmouth has solidified its reputation as the Navy's Center of Excellence for fast attack nuclear-powered submarine maintenance, modernization, and repair. These are not just words. Portsmouth Naval Shipyard consistently proves it by completing submarine maintenance ahead of schedule and under budget. Last year, Portsmouth executed the fastest engineering overhaul of a *Los Angeles*-class submarine in history, completing the work on the USS *Alexandria* 2 weeks ahead of schedule and $9 million under budget. We are not too proud. We have seen similar top-notch performances at Portsmouth with the USS *Springfield, California, Topeka,* and *Dallas.*

The challenge before us is to ensure Portsmouth and the other three public shipyards have the resources that they need to improve performance even further. Our sailors, our combat commanders, and our country depend on our public shipyards. These civilians perform a vital national security mission, and we should avoid policies that make their jobs harder or fail to reflect the importance of their work like sequestration, government shutdowns, and misguided TDY [temporary duty] policies.

This subcommittee is also particularly eager to discuss at the hearing with both of you today the performance of the public shipyards, including areas of excellence and areas that we need to continue focusing on, current and projected workload, and the personnel and infrastructure capacity of the public shipyards necessary to execute that workload, the importance of investing in infrastructure facilities and equipment, and why the projects re-

quested in the 2017 budget request are needed, plans for the dry dock modernization at all four shipyards, apprenticeship and training programs like the one that I referenced at the Portsmouth Naval Shipyard, and efforts to codify and share best practices among all of our shipyards.

Before we hear from our witnesses, I want to touch, in particular, on one area we will discuss, which is long-term TDY policies that negatively affect the civilian shipyard workers across the country. This is something that I have heard quite a bit from our shipyard.

As both of you point out in your joint prepared statement, on any given day, hundreds of naval shipyard workers are on travel to conduct critical maintenance of our Navy ships. That travel is central to maintaining our naval readiness and to sharing expertise and resources. As the Senate Armed Services Committee stated in its report on the national defense authorization last year, we must ensure that workers conducting long-term TDY for off-yard work are fully supported and encouraged.

Admiral Hilarides, based on your January 19th letter, I look forward to hearing why you believe that the long-term temporary duty policy for shipyard civilians is having a, quote, negative impact on the naval shipyards' ability to effectively and efficiently conduct Navy ship maintenance and actually, quote, has the potential to increase the end cost of projects.

I look forward to the testimony of our witnesses and to continue our work together to ensure the skilled men and women at our public shipyards have what they need to continue their work which is so vital to our naval readiness and our national security.

I thank our witnesses again for coming here to testify this day and for your service to our country.

I would now like to call on my ranking member, Senator Kaine, for his opening remarks. Senator Kaine?

STATEMENT OF SENATOR TIM KAINE

Senator KAINE. Great. Thank you, Chairwoman Ayotte.

Thanks to our witnesses for being here today. I so much enjoy working on this committee with our chair and we have had a number of hearings bearing upon the workforce that builds the largest items manufactured on the planet earth that are so important to our Nation's defense. I look forward to your testimony today.

We have to recognize the collective condition of our shipyards, both the workforce and the infrastructure, and the ways that we can improve that to do our job better in the future. Age and the deterioration and even the design of the shipyard infrastructure can negatively impact the work that we do. GAO [Government Accountability Office] found for fiscal year 2010 to fiscal year 2013, there were 96 ships that were in maintenance availabilities whose maintenance was affected because of inadequate infrastructure, either obsolescent because it was designed a long time ago or needing significant maintenance.

I am very happy to see that the Navy's proposal is to exceed the minimum 6 percent capital investment threshold for shipyards as required by law with a 7.1 percent investment in fiscal year 2017 proposed.

However, for an awful lot of the public shipyard workforce, the unfortunate effects of the RIFs, reductions in force, in the 1990s have come home to roost in the workforce. I just have a couple of exhibits on the table I think before the witnesses and also before all the staff members and all the committee colleagues.

Chart 1 shows an age demographics bathtub which resulted from workers being let go in the 1990s, and the compounding effect of sequestration has deepened this bathtub effect of worker experience. If you look at chart 1, you see significant numbers of the public shipyard employees in the 26- to 30- and 31- to 35-year-old age range, but then you see this dip in the kind of more experienced upper level workers because of that RIF policy in the 1990s.

We have a second chart, and it shows that currently one-third of all public shipyard employees have less than 5 years experience, and the average level of experience of the entire workforce is only 8 years. The Navy has, I think, a desired goal that that should be between 12 and 15 years, and at 8 years, we are a little bit short on the experience side, obviously. It is going to take a number of years to make a significant change and bring that average up to 12 to 15 years.

But there is some good news and it is the last chart. It shows what the hiring has been—hiring efforts and training investments in the shipyards with the target manning level of 33,000 by fiscal year 2016. You can see how it has ramped up as we have tried to fill in that bathtub that was left by the RIF policies.

But if the sequester comes back full force, some of these best laid plans of getting back to where we ought to be are really in jeopardy. I want to echo the comments that were made by the chair about that.

I also represent a State with a wonderful public shipyard in Norfolk but also one that has a lot of private shipyards too. This is a hearing about the public shipyard workforce, but I do want to say I am pleased that the Navy continues to grapple with how to kind of structure the entire level of work and provide as much predictability and balance as possible across the public and private shipyards.

For example, I understand that the Navy shifted three attack submarine availabilities to the private sector in fiscal year 2016 and for 2017 in addition to increasing private sector contracting opportunities in an area to try to even out the workforce. The whole cycle of hirings and RIFs, even if they are temporary, can put uncertainty into the shipyard workforce that does the work that we need.

I will conclude by just saying I also am really interested in talking about an issue that the chairwoman mentioned, which is best practices on the apprenticeship side. I think these are some of the best workforce programs that we have in the United States. I think if you look broader than just the issue of the day, we have tended to, you know, maybe for a couple of generations really promote college education and demean, downgrade, or kind of put at second class apprenticeship, career, and technical education opportunities when we know from experience these are great jobs that you feel patriotic doing every day, that you can be employed for a very long

time. We need to do the work to let the public know how high quality these are.

I am encouraged by the induction of nearly 1,000 first-year apprentices into the program and the hiring of over 650 nuclear and non-nuclear engineers in fiscal year 2016 and the apprentice school at Newport News, which is a private program which is going to celebrate its 100th anniversary here within the next couple of years. These core principles of craftsmanship, leadership, and scholarship in service of the Nation, in service of our Nation's defense, and also in service of setting the example of the American manufacturing might is something that we can be proud of.

Madam Chair, thanks for holding this hearing today, and I look forward to asking questions and learning from our witnesses. With that, I will turn it back to you.

Senator AYOTTE. Thank you so much, Senator Kaine.

I would now like to call on Admiral Hilarides.

STATEMENT OF VICE ADMIRAL WILLIAM H. HILARIDES, USN, COMMANDER, UNITED STATES NAVAL SEA SYSTEMS COMMAND

Admiral HILARIDES. Madam Chair, Ranking Member Kaine, distinguished members of the committee, thank you for inviting me and us here today to be part of this hearing. I am really honored to be here.

Vice Admiral Smith and I have submitted our full joint statement to the committee, which we ask to be made part of the hearing record. We would now like to provide a brief opening statement.

Senator AYOTTE. Yes, please.

Admiral HILARIDES. Over the past several years, our four public naval shipyards, Portsmouth, Norfolk, Puget Sound, and Pearl Harbor, have dealt with some difficult challenges, as you noted, a government shutdown, a hiring freeze, furloughs, aging infrastructure, in the face of an increasing workload, which has led to an imbalance in our capacity and our requirements.

I am pleased to say that we are well down the road to recovery. The Navy's fiscal year 2017 budget request includes funding to staff our shipyards to 33,500 full-time employees so that we can execute our peak workload.

However, having the right number of workers on board is the right first step, and over the last 3 years, our shipyard workforce has grown by roughly 4,000 full-time employees. When you combine that with natural attrition, we have hired more than 10,000 people in the last 3 years, and that is reflected, Senator Kaine, by the graph that you pointed out.

Now training is our top challenge. Our shipyards have shown a talent for innovation when it comes to training, whether it is revolutionizing training of today's new hires to get them on the job site faster, taking tanks off decommissioned submarines to use as real-life trainers for our sandblasters and painters, or utilizing 3D printing to create models to allow for proper planning of difficult evolutions. We have changed the way we train the next generation of shipyard workers who, not surprisingly, learn differently than previous generations, as our shipyards continue their innovative efforts to share their lessons with each other so that all may benefit.

Once our newly hired and trained personnel reach the waterfront, they quickly realize they are part of something special. Working on our Navy's most complicated and powerful warships makes them part of our Navy. They do not wear uniforms but they do know their work directly impacts global events. Without them, our Navy could not be forward deployed. They take great pride in their work, and this sense of duty has a lasting effect that I believe is the primary reason why people stay at our shipyards so long.

In reading the committee's invitation letter, I was pleased to see we share an interest in science, technology, engineering, and math [STEM]. I will tell you the Naval Sea Systems Command [NAVSEA] is committed to sharing our passion for STEM with students of all ages, and our four naval shipyards are leaders in this area. They have provided hands-on support to a number of national and local fronts, everything from first robotics, sea perch, underwater vehicle pool challenges, STEM fairs, going to schools to talk about what they do, and hosting students at the facilities to see what a STEM career looks like. I am exceptionally proud of the men and women who volunteer to take their time to be part of these great efforts.

As this is likely the last time testifying before Congress, I would like to take the opportunity to recognize the nearly 70,000 government civilians, including more than 33,000 naval shipyard employees who work at NAVSEA. Over my tenure, I visited all of NAVSEA's 30-plus facilities to see firsthand the remarkable accomplishments. NAVSEA's workforce is a national treasure. There is no other organization in the world that can do what they do. These unsung Americans allow the United States to have the greatest Navy in the world. As I approach retirement this summer, I would like to state publicly it has been my honor to serve with them.

Thank you for the opportunity to say a few words, and I look forward to answering your questions.

[The prepared statement of Admiral Hilarides and Admiral Smith follows:]

PREPARED STATEMENT BY VICE ADMIRAL WILLIAM H. HILARIDES AND VICE ADMIRAL DIXON R. SMITH

Chairman Ayotte, Senator Kaine, and distinguished members of the Senate Armed Services Subcommittee on Readiness and Management Support, we appreciate the opportunity to testify about the Naval Shipyards' role in meeting Navy operational requirements. We are here representing the more than 33,000 hard-working, dedicated and patriotic professionals—both civilian and military—who work in the Naval Shipyards. Our Naval Shipyards have been challenged by an increasing workload and the effects of hiring freezes and overtime restrictions that have contributed to some ships being delivered late out of their availabilities. To address this workload-to-workforce imbalance, we increased the size of our workforce and enhanced training and apprenticeship programs to improve productive capacity. Further, we continue to recapitalize our infrastructure to improve workflow and better align the shipyard layout and tooling. The men and women, military and civilian, who work at our Naval Shipyards are right now undertaking these initiatives and tackling these challenges every day.

OVERVIEW

The four public-sector Naval Shipyards (Portsmouth, Norfolk, Puget Sound, and Pearl Harbor) are wholly government-owned. As the owner of the Naval Shipyards, the Fleets provide the funding and task the Naval Sea Systems Command to oversee their operation. The Naval Shipyards provide the essential organic capability to perform depot- and intermediate-level maintenance, modernization, refueling, emer-

gency repair work, and inactivations on nuclear-powered aircraft carriers and submarines. They also maintain the specific core capabilities to support conventional surface ship maintenance.

Our Naval Shipyards must operate at peak efficiency. Accomplishing this requires correctly predicting the ship maintenance required; optimizing schedules with operational requirements; properly sizing the workforce; embedding the correct critical skillsets in the workforce; and enabling our people by equipping them with the right tools, facilities, and processes.

While work is primarily performed onsite at the Naval Shipyards, significant depot work is done off-station in Yokosuka, Japan, and San Diego, California. Maintenance and repairs are also performed underway and around the globe in Guam, Diego Garcia, and elsewhere. Our workforce will go wherever and whenever needed to execute repair work. On any given day, hundreds of Naval Shipyard workers are on travel to conduct critical maintenance on Navy ships.

WORKLOAD-TO-WORKFORCE IMBALANCE

The Navy had an increased workload and a less experienced workforce over the past three years. In fiscal year 2015, the Naval Shipyards executed 4.9 million mandays of workload which is 200,000 more mandays than fiscal year 2014 and well below the Navy's projected peak workload of 5.4 million mandays in fiscal year 2018. This steady rise has been caused in part by SSBN refueling, 688 major overhauls, introduction of the *Virginia*-class as well as evolving fleet composition, high operational tempo, and extended deployments.

Looking back over the past three years, hiring freezes and overtime restrictions had a significant impact on the Naval Shipyards. Additionally, we have seen a surge in retirements over the last several years and a rise in early career attrition. Combining retirements and attrition, our shipyards lost 2,125 people in fiscal year 2013, 1,931 employees in fiscal year 2014 with 2,235 in fiscal year 2015 and 911 to date this year.

To address productive capacity, we are focusing our efforts on four specific areas:

- One, hiring to meet increased workload demand and higher-than-average retirement rates;
- Two, developing our new workforce through mentoring, trade and skill training, and leadership/management training;
- Three, recapitalizing and modernizing the Naval Shipyards' infrastructure; and
- Four, implementing modern solutions to information technology systems to address cybersecurity vulnerabilities and improve productivity.

HIRING

In fiscal year 2013, the Naval Shipyards staffing levels were about 29,000 full-time employees. With the impact of budgetary constraints, a hiring freeze, and increased workload, accelerated hiring has been necessary. We continue to aggressively hire apprentices and experienced workers to support the increased workload. We are on track to meet our 2016 goal of an average of 33,500 direct and indirect full time employees by the end of the year. These new workers need extensive training, and we continue to invest in the required workforce training and development. In conjunction with increased hiring to meet workload demands, we have increased contracting with the private sector and deferred some non-critical work.

APPRENTICESHIP PROGRAMS

The Naval Shipyard Apprenticeship Programs are some of the best in the country and have been recognized by the U.S. Department of Labor as model programs. These programs seek to produce highly skilled trades people who are capable of executing the Naval Shipyards' technical and complex maintenance needs. They are a critical investment in workforce development that builds a quality workforce for the ship repair industry today, and lays the foundation of a longer term investment in our future leaders. In fiscal year 2015, we inducted nearly 1,100 apprentices, will bring in nearly 1,000 new apprentices in fiscal year 2016, and plan to add nearly 900 more in fiscal year 2017.

PRODUCTIVITY PROGRAM INITIATIVES

The Naval Shipyards continue to invest in the following major productivity program initiatives:

- Continuous Training and Development, which uses practical hands-on training with learning centers and mock-ups to accelerate production-worker skill and

proficiency development. These methods create an environment where it is safe to fail—meaning that the workers have a simulated environment where it is okay to make mistakes and to learn from them. The training method is dynamic in that it is given to new employees, mid-level mechanics, and journey-level workers for critical skills proficiency and qualifications to accelerate and leverage knowledge transfer from subject matter experts to our newly hired workforce. Continuous Training and Development improves our ability to get work right the first time.

- Industrial Processes Corporate Communities of Practice bring multi-disciplined, multi-yard groups together and create opportunities to stimulate innovation, promulgate best practices, and significantly expand knowledge sharing to improve performance. These communities have the involvement of engineering and production organizations that are aligned to similar work products and processes.
- Continuous Process Improvement efforts are focused on Lean Principles, which maps processes to identify and eliminate waste in order to improve throughput and cycle time to drive efficiency. In addition, a Cumbersome Work Practice Task Force is helping the Naval Shipyards challenge requirements to maximize efficiency and effectiveness while minimizing cost. New technology insertion is used to keep abreast of technology changes and evaluate them for incorporation into Naval Shipyard industrial processes for improvements in safety, quality, and cost performance.
- Integrated Work Teams responsible for planning and executing work with the use of Lean principles are being implemented to improve work coordination and efficiency. Project management specifies what work is required to be accomplished and when, and the integrated work teams determine who does the work and how it is accomplished. Efficiencies are created as the work teams perform the same type of work across multiple projects or availabilities. By creating stable work teams, the execution of work is improved and waste is eliminated.

INFRASTRUCTURE

Naval Sea Systems Command and Commander Navy Installations Command continue to prioritize the sustainment and recapitalization of the Naval Shipyards' infrastructure. Investments are focused on mission-critical facilities in the Controlled Industrial Area, which primarily include production shops, piers, wharfs, dry-docks, and supporting utility systems. Other investments maintain and upgrade industrial plant equipment capabilities that are integral to performing ship and submarine maintenance. Naval Sea Systems Command is also focused on the Naval Shipyards' information technology systems. These systems are outdated and a challenge to support as we push to meet new cybersecurity standards. To address this issue, Naval Sea Systems Command is implementing solutions to the maintenance information systems which focus on improving workforce productivity and cybersecurity vulnerabilities. Overall, facility investments are prioritized to address the most critical capability, safety, and productivity deficiencies associated with mission-critical facilities.

In concert with Commander, Navy Installations Command, Naval Sea Systems Command is prioritizing military construction projects and continues to invest in Naval Shipyard facilities sustainment, restoration, and modernization at a level above the Navy facility average. The fiscal year 2017 military construction funds of $58 million will recapitalize infrastructure in the Naval Shipyards by improving utility system resiliency and reliability, aircraft carrier and ballistic missile submarine maintenance facility capabilities and efficiencies, and production shops. Restoration and modernization projects will mitigate seismic vulnerabilities, maintain dry-dock certification, improve utility system reliability, repair aged and failing facilities in the worst condition, improve energy efficiency and reconfigure shipyard layout to improve efficiencies. The capital investment in Naval Shipyard infrastructure continues to adhere closely to the report to Congress and exceeds the minimum level required by law (10 USC 2476) for all Department of Navy Depots.

As part of the Navy's Nuclear Enterprise Review, $42 million was added in fiscal year 2016 and the President's Budget submission for fiscal year 2017 adds $48 million to accelerate shipyard infrastructure improvements from a 17-year recapitalization plan to a 15-year plan. Increased funding for sustainment and for restoration and modernization is intended to reduce the risk to the Nuclear Enterprise as supported by the shipyards.

In fiscal year 2017, the Naval Shipyard Capital Investment Program industrial plant equipment investments include a $25 million defueling complex at Portsmouth Naval Shipyard, $9 million in drydock #2 material processing improvements at

Pearl Harbor Naval Shipyard & Intermediate Maintenance Facility, and $4 million in dock crane modernization projects for Puget Sound Naval Shipyard & Intermediate Maintenance Facility. These investments will help to improve Naval Shipyard performance.

SUMMARY

Our Naval Shipyards are comprised of more than 33,000 hardworking, dedicated professionals devoted to supporting our Navy. Through our Registered Apprenticeship Programs, ongoing training, and productivity improvement initiatives, we will continue to invest in this workforce. We will gain increased efficiencies through recapitalization of our infrastructure. Our goal each and every day is to get our Navy's ships back to sea when the Fleet needs them.

Again, thank you for the opportunity to talk about our critical Naval Shipyards and for your continued and crucial support of our Navy.

Senator AYOTTE. Thank you for your leadership and all that you have done for the country, for the Navy, and we are so grateful for the sacrifices and service of you and your family. We wish you the very, very best. Thank you.

I would like to call on Admiral Smith now for his testimony.

STATEMENT OF VICE ADMIRAL DIXON R. SMITH, USN, COMMANDER, UNITED STATES NAVY INSTALLATIONS COMMAND

Admiral SMITH. Thank you, Madam Chair. Madam Chair, Senator Kaine, and distinguished members of the committee, thank you for inviting Admiral Hilarides and me today to discuss our efforts in support of the Navy's four public shipyards and our investment in their infrastructure and supporting services.

Budget shortfalls over the past several years have caused Navy to take deliberate risk in the shore infrastructure in order to sustain fleet readiness. Within the shore accounts, the Navy continues to place a high priority on the infrastructure of our Navy shipyards, including military construction, facilities sustainment, and facilities restoration, and modernization. Shipyard investments address the most critical safety and productivity deficiencies in the controlled industrial area, which primarily includes production, jobs, piers, wharfs, and dry docks.

Despite today's fiscal constraints, the Navy remains committed to improving the condition of our naval shipyards which are critical to maintaining the warfighting readiness of our force. I am pleased to report in fiscal year 2017, as Senator Kaine stated, the Navy will again exceed the mandated capital investment of 6 percent across our shipyards.

Having served as an installation commander and a region commander three times, regions which included three of the four public shipyards, now as Commander of Navy Installations Command, I have witnessed firsthand the challenges and opportunities of operating such a complex command and have made it my personal priority to support the shipyard commanders and their world-class workforce.

Thank you, Madam Chair. I look forward to yours and the committee's questions.

Senator AYOTTE. Thank you, Admiral Smith.

I would like, first, to begin with a question for Admiral Hilarides about the TDY policy. This is something that this committee has also discussed as well very recently with Admiral Howard who came before our committee. She had testified that there should be

a concern that we ensure that there is no negative impact on the naval shipyards' ability to effectively and efficiently conduct Navy ship maintenance. To me, this is something that—I talked to her about your prior comments in the January letter, and she expressed concern as well that this policy could end up costing us more.

My concern, having heard from, obviously, my constituents who work at the Portsmouth Naval Shipyard who are deployed to help other shipyards all the time and obviously help the Navy, they want to do this. But right now, the new TDY policy is negatively impacting their ability to do that. We cannot ask them to go off to other shipyards and leave their family and actually be in situations where it might cost them more to do that based on staying stateside or put them in living conditions that do not allow them to focus on their job.

I wanted to ask you just very specifically based on what you have said in the past—I know you have already said that it has had a negative impact on the naval shipyards' ability to effectively and efficiently conduct Navy maintenance and does have the potential to increase the end cost. I know that was not the goal in putting the policy in place, but we have to look at the actual impact of a policy. I think that is really, really important.

I wanted to ask you today how has the new long-term TDY policy negatively impacted the naval shipyards' ability to effectively conduct naval ship maintenance. I know the policy was intended to save money, but what are these unintended consequences that have flowed from it that I think all of us think it is important to address?

Admiral HILARIDES. Yes, ma'am. I will attempt to characterize it, and I will try to be concise but it does require some detail.

I do stand by the letter that I wrote, and it deals specifically with the trade laborers. These are shipyard workers who spend 10, sometimes 12 hours a day hauling a welding machine cable, pipe. This is hard physical work. They are volunteers. To go on TDY in accordance with their union contract requires them to volunteer. They will volunteer if they are properly recompensed for their travel.

The travel regulation, as I understand it, when it was put in place, said after a month, you can negotiate a long-term arrangement with your housing, and you can lower your cost of food and other things by shopping smartly. Many people on travel can do that. They go to school for 6 months. They can find time to get to a store and stock a long-term lease with that kind of food.

These folks, however, are working many times 12 hours a day, hard, physical labor, and getting out to a store, finding food, coming back, and cooking it just has not been something that fits in the kind of day that they have. They spend their money at the closest fast food store they can find, and they really cannot survive on the money that is provided once it starts to get reduced on that.

I wrote specifically about those folks because we need them to volunteer to go do these jobs, many times of which is 3 months, 4 months. It could even be more than 6 months. We want them to go as a team. They are most effective. It is as much an effectiveness argument as anything. They are most effective when that

team is integral and operates together as a team for their entire time. When that work team goes, you want them to volunteer. You want to properly support them, and you want them to get their work done efficiently and effectively.

If after a month, their allowance goes down and they go home and are replaced by someone else, you lose that effectiveness in the team, and then of course you have the travel costs.

I wrote my letter. It is in staffing. We have made the business case that is being analyzed, as the Vice Chief indicated. I will continue to fight to have them see that, yes, in fact, in this narrow case, it makes sense to create some sort of a standard variance from that rule. We will see how that goes over the next few months.

Senator AYOTTE. Well, you know, I certainly appreciate that you have made that case, Admiral. I think we are, hopefully, going to make our case as well, wanting to make sure that our shipyard workers can continue to help and deploy to help with the naval maintenance that needs to be done.

I know today, in fact, every Senator who is representing a public shipyard is supporting legislation that I have introduced that will ensure that we have a TDY policy that allows them to continue doing this. We want to work with you on this. I want to thank all my colleagues, including the ranking member and, of course, Senator Shaheen and Senator Hirono, for their support on this issue because this is a critical issue to us and to make sure that we can continue to support our workforce as they deploy to other shipyards or other maintenance calls from the Navy.

I also want to ask about the issue of best practices because as we look at the number of new hires that have been made, I mean, it is a tremendous number of new hires. Having recently been at the graduation at the Portsmouth Naval Shipyard, this is quite a few people that they are integrating. They have an excellent apprentice program. As we think about how to improve all of our public shipyards, how are we going to make sure that we share best practices whether it is in the training space?

Also, Portsmouth has really done a lot of work on labor-management collaboration, empowering the workforce, and this I think is what has allowed Portsmouth, for example, to produce these submarines back into service under budget and before time. How are we in the Navy going to make sure that we do that and we are all sharing each other's best practices not only on the training and the workforce issues but also just the excellence and performance issues so that we all benefit from hearing from each other?

Admiral HILARIDES. Yes, ma'am. That is really headquarters' responsibility to pull the four shipyards together. We have created, really with the help of the shipyards—in many cases, it was their idea—things we call communities of practice. You get the electrical shop of all four shipyards together in one location. You share the best training ideas. You share the best workforce development ideas. If there is a new maintenance practice that has been created, there is nothing like being shown it hands-on as opposed to a written description or even a video. Those communities of practice is our principle method of taking those best practices and sharing them across all the yards.

Portsmouth is very much in the lead of this, but Pearl Harbor's rigging trainer sets the standard for the shipyards. Actually some Portsmouth people saw that rigging trainer and said, boy, we need one of those at our shipyard. Those communities of practice are a predominant way to do that.

On the labor-management side, my predecessor created a thing called the NAVSEA Labor-Management Council. This is a council between NAVSEA, the national metal trades, the national IFPT, and the other unions that are at the shipyards above the bargaining unit, so it is a management-labor discussion that is above bargaining and it is about opening up this dialogue about how to make sure we have all the pathways to the sharing across the shipyards to the very best communications between management and labor. When there are shortfalls, they tend to go up to the Labor-Management Council, and then I talk at the national level with folks like Ron Ault and then we go work on it together from a national level to go try to help labor relations improve. I think Portsmouth still is at the leading edge of that labor-management relationship.

Senator AYOTTE. Well, I thank you for that. I think having seen how they together really from the grassroots perspective develop their declaration of excellence and things, I hope that that is something that we can, obviously, share. I appreciate your testimony. Thank you.

I would like to call on Senator Kaine.

Senator KAINE. Thank you, Madam Chair.

I want to talk a little bit about the infrastructure and how you guys measure the infrastructure plan that you have. The naval shipyard depot maintenance infrastructure plan was issued in April 2013. I think it was pursuant to the NDAA [National Defense Authorization Act] that was done in 2012. The plan had five tenets of infrastructure improvement: eliminating maintenance backlogs, remediating seismic deficiencies at any of the shipyards, maintaining dry dock certification, improving infrastructure layout to increase efficiency, and improving the utility system reliability. When the plan was initially done, there was an extensive list of things to be done. It was estimated that it would take about 17 years to complete each of the five tenets.

Talk to us about progress on that plan. The plan came out right as full sequester hit. I am going to get into the sequester in a minute. But I am curious as to the timeline of the Navy's effort to tackle that significant amount of work to keep our shipyards in a very efficient and productive status.

Admiral SMITH. Senator, we have been working at that. As you know, with the budget restraints that we have right now, we have to prioritize the risk of what we go after. With the shipyards, the requirements that Admiral Hilarides has at his four shipyards feeds into the fleets, and then the fleets will balance that with the requirements they have on the operational side. Then those will go up and come up to D.C., and then we will rack and stack those in the priorities. Through that process, we are making efforts on getting after the shipyards and that plan and moving it. I believe we are inside 17 years now. I am not sure of the specific——

Admiral HILARIDES. As a result of the review of the nuclear forces, that number has actually been reduced to 15 years, and that 15 years has been funded as reflected in the 2017 budget.

Admiral SMITH. Whereas, for example, in fiscal year 2017 where we are funding our facilities sustainment, restoration, and modernization account to 70 percent, shipyards are being funded to 85 percent and the nuclear enterprise is being funded to 100 percent. We are putting our emphasis on the shipyards to get them where they need to be.

Senator KAINE. Admiral?

Admiral HILARIDES. The other question I think is about dry dock modernization. The dry docks at Norfolk Naval Shipyard will eventually be required to support the *Ford*-class aircraft carrier, which is significantly different. We have those modernizations laid in place. Of course, they are not for a number of years because the first dry-docking at Norfolk Naval is not out for a number of years.

Similar is true of the *Virginia*-class. Eventually we will need more dry docks in Pearl Harbor and Portsmouth that are capable of docking the *Virginia*-class, which has some differences from the 688 class. Particularly as we go look to put Virginia payload modules into *Virginia,* we will lay those plans in. But we will not do them long in advance of those requirements. We will probably do them just in time as those ships come into the fleet and then are projected out to when they will need their first dry-docking, which could, in some cases, be as many as 10 years into the ship's life.

Senator KAINE. Now to kind of segue into sequester, because it is related to the ability to complete this infrastructure program, when we went into full sequester in fiscal year 2013, there was a $9 billion shortfall in the Navy's budget, and as it affected these items, there was the cancellation in the Navy of about 75,000 days of civilian labor for major projects and the outright cancellation of a number of planned shipyard projects.

We heard from Admiral Howard earlier this month that even if everything is fine going forward, we do not go back into full sequester, that dip will suggest that we will not get back to full spectrum readiness until at least the early 2020s, and that is assuming no more sequester.

How would another round of sequester, if we do not find a path out of sequester at the end of the biannual budget deal we did—how would another round of sequester affect your ability to do the ship maintenance on time, on budget, but also complete some of these infrastructure improvements that you planned out over the next 15 years?

Admiral HILARIDES. I will take a stab at sort of the operation of the shipyard and then turn to Admiral Smith for the infrastructure side.

The most damaging thing that happened out of all of the things that went on there is when it became clear the budget was going to be dramatically reduced, they put in place a hiring freeze and stopped the hiring of civilian employees. Then the sequester then locked that freeze in place. It was some number of months after the kind of a path from that point was laid out before we returned to hiring. It ended up being almost a year where we did not hire in the shipyards.

If you do the math on what I talked about, we lost ground by 2,500 or so employees from zero, and we were supposed to be hiring up during that time period. We found ourselves 4,000 or 5,000 people below manning at a time when the budget came back and we started doing the maintenance again, that we were so far behind that that bow wave that formed is a part of what the Vice Chief was talking about.

The most damaging part of all of it is the idea that we stopped the hiring machine that is in the shipyards. Two thousand five hundred people a year on average just for attrition. If you are not hiring regularly with connections into the schools and into the local labor force, you cannot just turn that on a dime. For me, that is the most alarming thing out of the thought that we would go into some sort of a temporary freeze is those temporary freezes have lasting impacts that go for a very long time.

The other part that a sequester does is it squeezes the other accounts. The people who are in the government will be paid, and we have a commitment to them to pay them. But they will not get any overtime or enough overtime to do all the jobs they have. They will not get those borrowed labor folks from Newport News or from the other places we get borrowed labor to go help them in those times where the work peaks and they do not have all the resources themselves.

Then it hurts in the material and parts and all the things necessary to be ready to do the job when you show up.

It is a broad impact, hard to measure in any one metric, saying that was caused by sequester. But overall in efficiency. The place we are right now is still very much due to the impacts that that event had there at the end of 2013.

Senator KAINE. Admiral Smith?

Admiral SMITH. Sir, with respect to infrastructure facility—and I will talk larger than just the shipyards. We track our facility condition by what we call FCI, facility condition index, code. One hundred is good. We consider 60 failing. The Navy's average right now—we are at 79.9 is our FCI. The shipyards are a little bit less than that, i.e., the reason we are funding above the 6 percent.

With the BBA [Bipartisan Budget Act of 2015] right now, in 2021 with the current funding, that 79.7 will drop to 77.7. We are going to lose 2 percent just with the funding we have right now. If we go into sequestration, that is going to fall off even more.

In other words, we are not gaining ground right now. We are gaining ground in the shipyards. We are putting 100 percent to the nuclear enterprise, but for the rest of our facilities out there, we are not gaining ground. We are losing ground. Sequestration will cause us to lose even faster.

Senator KAINE. Thank you very much. I appreciate it.

Senator AYOTTE. Senator Rounds?

Senator ROUNDS. Thank you, Madam Chair.

I would like to just begin by talking a little bit about the *per diem* issue with regard to the shipyard workers. I think the chairwoman's proposal to offer a legislative fix may very well be the appropriate way to go in terms of reinstating the full *per diem* payments. Admiral, it would appear that you agree with the chairwoman's thought process in terms of bringing that back up to

where it should be. Is that a fair—am I putting words in your mouth, sir?

Admiral HILARIDES. No, Senator. I just want to be clear. It was for a very specific group of trade labor people, direct labor people. It was not for everybody who travels from the shipyards or all of us who travel routinely for our business. It is for that narrow group. Yes, I very much stand by that.

Senator ROUNDS. Very good. Thank you. I have an interest in seeing that move forward. I do think that the possibility is that we have probably tried to save some pennies and it may very well be costing us in terms of pounds. I do not have any shipyards in South Dakota, but I do have an interest in seeing that things run efficiently within those shipyards, and it sounds like this is one of those cases where it would be very helpful to make things more efficient.

Also, am I correct in that when we start looking at the labor arrangements that we have, that as these folks are asked to volunteer, there is a lineup from senior members down the line to the most junior in terms of those who may accept a deployment away from their home? If we have reduced the *per diem* for these individuals, the most qualified are perhaps the first to decline where you may have junior members accepting a deployment away from their home base, thus probably not having your most seasoned team members moving from one location to another on a regular basis. Am I correct in that?

Admiral HILARIDES. Sir, I think to be precise, that depends on the bargaining unit of each shipyard, which trade school you are talking about. Generally that is, I believe, an accurate description of how those union arrangements work. But it is very specific by bargaining unit. But I do know that broadly it has been detrimental to both the quality of the people who come and their willingness to stay long enough to finish the job, sir.

Senator ROUNDS. Let me turn just a little bit—I noted in the discussion earlier that you had indicated, sir, that the Naval Sea Systems Command is focused on updating the shipyards, the outdated IT systems in order to meet modern cybersecurity standards. I am just wondering if you could take a few minutes and elaborate on just what that means and the impacts, if there are some examples of concerns that you could share with us and what the needs are that are out there right now.

Admiral SMITH. Yes, sir. We are in the middle of a study to go figure out the correct path to go replace the information infrastructure that we run our shipyards from. That really does include everything from the individual work items, putting them into packages that workers can use, taking those packages and streaming them into a time-phased network that allows you to plan and sequence the work. It allows you to apply people to those jobs and then have them be paid. It is the actual system that documents their hours and makes sure they get a paycheck in their account at the end of the 2-week period.

That system right now is an old set of information systems that have been put together over the last 30 years. We have attempted to modernize it before and not done well at that because, frankly, we did not put the right professionals in my opinion against the

task. We are now re-arraying those correct IT professionals with people who actually have better experience to go get that project right.

We anticipate that is a 5 to 6 year project. It is currently in the analysis of alternative [AOA] stage. I am confident that we will be able to, this time, modernize that system and be able to answer all the things that go on there.

There is an efficiency piece there. We have a program to build an electronic work document. If you get a shipyard worker, he will be walking around with this stack of paper drawings and paper procedures. The electronic work document is about ready to field, and of course I need the infrastructure to put that technical work document in. That is all part of that investment. You will begin to see that investment in our budgets going forward as we finish the AOA and lay in the program to go do that.

Sir, I will point out that when South Dakota is ready to come into a shipyard, we want to make sure they are ready.

[Laughter.]

Senator ROUNDS. No question about it. The experience that I had yesterday in the keel laying for the future USS *South Dakota* was impressive. Anytime you learn about a *Virginia*-class submarine and what the capabilities are, you start to realize how significant the weapon systems are, how complex they are, and how much they rely on the newest technology. I think when we start talking about the work on the weapon systems that are found within these shipyards and propulsion systems, it would appear to me that this would be an area of very high priority in terms of making sure that the data we take in, the information that we feed back in and so forth would be of the most sensitive nature. Certainly we should have appropriate cybersecurity protections in place. It sounded like while we talked a little bit about the operations side on this—or the information side on it, the operations side of the systems and so forth, which are also upgraded, would be a critical part of that discussion as well.

Admiral HILARIDES. Yes. The shipyards also would use those systems to feed, for example, dimensional controls into a numerically controlled machine. The cybersecurity of that is along the lines of our SCADA [Supervisory Control and Data Acquisition] systems, the things that are going on. A lot of work inside NAVSEA to go provide the cybersecurity of those control systems both inside ships and then inside our physical infrastructure, Admiral Smith as well for his critical infrastructure. That would be part of that program would be to make sure we do that exactly right.

Senator ROUNDS. Thank you very much for your service to our country.

Thank you, Madam Chair.

Senator AYOTTE. Thank you, Senator Rounds.

I would like to call on Senator Hirono.

Senator HIRONO. Thank you very much.

We just noticed that the clock is not quite giving us the full time, just to let you know, Madam Chairman.

Senator AYOTTE. I am going to make sure everyone gets their full time.

Senator HIRONO. Thank you very much, Admiral Hilarides, for your service, and I also extend my best wishes to you in your future endeavors.

Thank you also for raising the issue with regard to the impact of TDY on our workers. Those of us who have shipyards—and of course, Pearl Harbor is the largest industrial employer on Oahu—we have all heard from our workers as to the negative effects of this policy. I certainly support the chairwoman's initiatives in this regard.

As we look at the need for training of the workforce, as you mentioned, the hiring freeze really put a damper on the number of workers that we need. Training, our apprenticeship programs are really critical. I try to go to every single one of our apprenticeship graduations as I can.

My understanding is for the apprenticeship program at Pearl Harbor, they get a lot more applicants than they actually take into the apprenticeship program. Is that the case in the other apprenticeship programs? If so, since we have such huge workforce needs, can we expand the program so that we can train more people?

Admiral HILARIDES. The apprenticeship programs were sized to make up that sort of standard loss, a couple thousand people a year.

Senator HIRONO. Two thousand five hundred or so.

Admiral HILARIDES. When we try to take many more than that, as we have in the last 2 years, we stretch those apprenticeship capabilities sort of to their maximum. I actually believe they are appropriately sized, as long as we continue as a going concern, normally hiring and not freezing and then rehiring.

Your question I think, though, is beyond that. It is could we use those apprenticeship programs to train workers for other industries. I would not advocate that, but again, we can go look at that.

Senator HIRONO. I think that we definitely need people trained, especially in the STEM areas. It is very impressive to see a submarine in dry dock, for example, because you realize the kind of skill sets that our workers need to repair and maintain these huge, complicated ships.

When we talk about efficiencies, I realize that modernization and maintenance of our facilities is really important—best practices. I am curious to know whether you have a process or a system to get input from the workers themselves as to how they can improve efficiencies at the shipyards.

Admiral HILARIDES. Yes, ma'am. Actually I know you are fairly aware of them, the moonshine projects that have come out of Pearl Harbor Naval Shipyard. Really each of the shipyards has a slightly different name but really the same idea, which is when you get the trade labor involved in the decisions about what machine to buy, how to modernize your processes and procedure, you get the very best idea. I think Toyota would tell you the same thing. We very much work to encourage those.

They tend to be local. I do not spend a lot of time from headquarters directing that because those things do not tend to work very well. But the shipyard commanders certainly know that I have incentivized them to open up the idea machine from the workforce and make sure that we are getting their best ideas. A very

complex set of controls and things associated with it because you have got to also be very safe with all that. But I think that each of the shipyards, to the best of their ability, is working to go tap into that stream of innovation that comes from their workforce.

Senator HIRONO. There have been some real creative ideas from the workers themselves that have been incorporated into the shipyard.

Admiral HILARIDES. Yes. I think point of use tooling is a great example of that. Can you not just put the tools by where the worksite is? They challenged us and we did. Of course, we got efficiencies from that.

Senator HIRONO. That seems so sensible.

As Senator Kaine has mentioned, though, our experiential level is not where they could be in terms of the workers we have. Are there any programs to bring some of the more experienced people back into the workforce or keep them in longer to fill that gap—experienced staff?

Admiral HILARIDES. Yes, ma'am. In the government civilian ranks, there is a program called "retired annuitant." You can get a retired annuitant.

Senator HIRONO. Retired what?

Admiral HILARIDES. Retired annuitant. Basically you are allowed to bring them back for up to 2 years half-time, so about a year's worth of work. They have to spend half of their time training the workforce. You cannot bring them back just to work. They have to come back for training.

I know the shipyards are using those sparingly because they are fairly expensive. Those people, after they get out, a lot of times will go get other jobs.

We have a contract with several different companies, different in each shipyard, to bring coaches. We are finding that now with a large tranche of new labor force that the first and second line supervisors, of course, are not keeping up. Because you have created that bathtub that Senator Kaine pointed out, you are pulling forward first and second line supervisors to more senior jobs, and we are getting a lot of very junior first and second line supervisors. We are actually working to bring in companies that know how to coach new supervisors on how to run a meeting, how to schedule work, how to deal with problem employees. We are doing both of those things.

Senator HIRONO. Is that happening at all of our four shipyards?

Admiral HILARIDES. To varying degrees and, again, according to their need. I think Pearl is probably not quite as urgent as Puget and Norfolk are. Their numbers are very, very large. Pearl has been able to use predominantly their traditional methods. But I think that is the case. Yes, ma'am.

Senator HIRONO. I also know that at Pearl Harbor that we do have students from other nations. Right now, 12 students from 7 nations are learning skills at the shipyard on various aspects. Can you discuss the importance of working with our international partners and programs such as these?

In Pearl Harbor's case, we have people from Bahrain, Bangladesh, Brunei, Guyana, Pakistan, Saudi Arabia, and the Philippines working with our shipyard people.

Admiral HILARIDES. Yes, ma'am. That is a project that predates my leadership time at NAVSEA. We basically partner with countries that we want to help build their own capacity. Predominantly this is at the leadership level not at the trade skill level. It is at the leadership level. Someone who would likely run one of their shipyards. We bring them in. We show them how our shipyards function. We provide them mentoring opportunities and training opportunities. Then those relationships—I know some of my shipyard commanders have relationships with people they went through that course with when they were younger, and those relationships endure and create the kind of conditions by which we have very, very close shipbuilding relationships with many, many countries that are our close allies.

Senator HIRONO. That is probably a really good idea.

Would you like to add anything to that, Admiral Smith?

Admiral SMITH. We use the annuity guys also, you know, for hiring after, for training. I have got some of my staff that are out. They are folks that are ready to retire. I want them to be able to pass on their skill set. It is not just kept to the shipyards, but we do use that across DOD [Department of Defense] and Navy.

Senator HIRONO. Thank you.

Thank you, Madam Chair.

Senator AYOTTE. Senator Shaheen?

Senator SHAHEEN. Thank you.

Thank you both for being here and for the work that you do every day for the country.

I want to also add my voice to the support for the waiver of those joint travel regulations. Like Senator Ayotte, I represent the shipyard in Portsmouth, and we have heard very directly about the concerns that people have had. As you reiterated, we want the very best people with the most skills doing those jobs when they travel. I think it is very appropriate that you have waived those requirements, and hopefully we can get that fixed for the long term.

I also want to applaud again the Navy's exceeding the minimum 6 percent capital investment for shipyard modernization. Obviously, we are seeing that begin to have an effect at Portsmouth where they are working on the backlog of projects that need to be done. I wonder if you can speak to the importance of those modernization projects. You have talked a little bit about how important they are to maintaining the fleet, but can you elaborate on that?

I know one of the things that we are very proud of in Portsmouth is, when a project comes in, completing it on time and on budget and often ahead of time. Do you know what percentage of ships and submarine maintenance were completed on time and within budget for the last year that we have data on?

Admiral HILARIDES. We have that data. It is not particularly flattering, and I can provide it to the committee.

[The information referred to follows:]

In fiscal year 2015, the 4 Naval Shipyards completed 22 availabilities of which 6 (27.3 percent) were on time and 1 (4.5 percent) was at budget. For perspective, 10 of the 22 availabilities completed in fiscal year 2015 were within 10 percent of CNO schedule durations and 4 of those 22 availabilities completed within 10 percent of budgeted mandays.

Senator SHAHEEN. Does it break out how the differences by ship, by shipyard, by year, by project in a way that provides some insight on what could be done to improve operations with respect to completing projects?

Admiral HILARIDES. Yes, ma'am. For—and I will say Portsmouth and Pearl Harbor where predominantly it is SSN projects and there is a lot of like work, that is very good data and we use it all the time to go benchmark and figure out how to help project teams do better and better.

The two large shipyards are wrestling with a much more challenging set of work. Each of the big yards has a ballistic missile submarine refueling going on right now. They are actually moving nuclear fuel around a ballistic missile submarine. Both of them have an aircraft carrier in yard right now, which is a massive workload compared to a submarine project. They both have SSN projects, as well as waterfront support and other off-yard things. Puget has a carrier in San Diego and a carrier in Yokosuka also under repair.

I can provide you all that detail. I would just urge caution in the use of the data for benchmarking. Each shipyard is in a place in its cycle. Portsmouth is in a very, very good cycle. They have been at the top of their game now for quite a while. Pearl is on the rise. There are some lights of great performance and a couple of things that have not gone quite so well in the other two yards as well. We can provide the data. I would just urge caution in how you would interpret as that shipyard is great and that shipyard is not any good. We spend a lot of time on that data.

Senator SHAHEEN. Well, and certainly that would not be my thinking about it, but more to think about how the Navy is using the information and what lessons can be learned from shipyard to shipyard about what is working and effective and what needs more work.

Admiral HILARIDES. We used that data actually to make the case for the hiring. The hiring was not a slam dunk. It took us a long time to convince the Navy to allow us to hire up to the numbers that we made the case for. We used specifically the Portsmouth performance in 2011, 2012, and 2013—and Pearl. They got almost all their avails done in time during that period because their workforce was sized to the workload we had. We are just now starting to size Norfolk, Puget for the workload they actually have in yard. Performance is improving nowhere near fast enough and plenty of work to do, but we do use that data. Thank you, ma'am.

Senator SHAHEEN. To what extent has sequestration affected the ability to make the case for the hiring that you need for those projects?

Admiral HILARIDES. We went into the time of the sequester working on convincing them to hire us up. They had applied some efficiency targets to the shipyards that had suppressed the total number of people we had. We had made the argument that those targets were not rational and that we needed to release them. We were sort of on a flat hiring spot. Then we froze hiring, and then we finally made the case. Those 11,000 people really represent that divot, and that divot is reflected in delays in aircraft carriers, sub-

marines, the avails that are going on right now. That is not an excuse. That is just the facts.

Senator SHAHEEN. One of the things that I have been very impressed by is the Navy's diversifying its energy resources and the ability to use efficiencies both on base and in terms of the fleet and making it more efficient and relying less on fossil fuels. I wonder if you could talk about how you see the importance of that.

Admiral SMITH. We take the energy conservation and efficiency very seriously. We are working very hard to meet not only the Federal goals, but we have our own goals within DOD and the Navy. I can speak to the shore side. I really cannot speak to the operational side. But we focus at all 70 of our installations on how we do conservation, reducing the demand, efficiency against a 2003 baseline. They are all well over 20 percent and coming down. We invest a significant amount of resources in each year into those energy projects to help continue to bring those down. It is also a behavioral and getting folks to turn out lights and do those kind of things. The more we do that, it reduces the utility bill. I have for running the shore, about a $10 billion budget. About $1 billion goes to utilities. The more we can drive down that utility bill, it is obvious that it is going to help us. That is why we focus on it very hard. It is just smart business because it is less expensive.

Senator SHAHEEN. I assume there are some national security incentives for doing that as well.

Admiral SMITH. Yes, ma'am.

Admiral HILARIDES. On the ship side, there is a set of alterations to various classes of ships that are aimed specifically at that. It is really not to save the money for the fuel. It is to give the CO [commanding officer] more combat range because the ship uses less gas. There is an operational imperative on the ship side as well.

Senator SHAHEEN. Thank you. I think sometimes that gets lost in the debate around energy that it is really not just about saving money and being more efficient. It is also about the national security imperative. Thank you.

Thank you, Madam Chair.

Senator AYOTTE. Thank you, Senator Shaheen.

First of all, I want to say a thank you, which I have said before, but I want to make sure I thank you again, Admiral, and that is for requesting funding for the P285 barracks at Portsmouth Naval Shipyard for our junior enlisted sailors. I thank you. I know that Senator Shaheen was a great advocate for that too, and I think both of us were grateful that you put that in. Thank you.

I also wanted to ask about—in light of the threat of terrorism, as we think about force protection, obviously security personnel, security barriers are all important as we think about the important assets at our shipyard. Obviously, our nuclear submarines are so important in terms of their technology in protecting them.

One of the things I wanted to ask you, Admiral Smith—has the Navy been examining waterside security barriers to provide better protection for our shipyards and naval bases? I think that was an issue that you were studying, and if you could give me an update versus what you have determined on that and how that compares to what is currently used. Is there a next generation of force protection for waterside barriers that we should be looking at?

Admiral SMITH. Yes, ma'am. We are looking at next generation. We have been doing that throughout this winter. All our shipyards have a harbor security barrier around it, as do our installation piers. But what we have right now does not meet the requirement for high-speed boats that could be used for a terrorist attack.

Senator AYOTTE. What is in place right now does not do it. We need to——

Admiral SMITH. Yes, ma'am. We are looking at that. This past winter—actually this week, we are going through the eighth testing of a new product down in Norfolk. My operations officer from headquarters is actually going to be down there to witness it. It has got a better ability—it is proving out to have a better ability to stop vessels quicker. It also has a semi-automatic capability to open and close on its own. One, it has the potential to provide more security, and it also, on the other hand, can be more efficient so we can reduce overhead, dedicated boats that we have to open and close those. That testing is still going on, but it looks to be very fruitful. I am very optimistic that we are well on our way to going to the next generation and have good potential resources out there to do that.

Senator AYOTTE. Good. This important to the Navy to do that?

Admiral SMITH. Yes, ma'am. Absolutely.

Senator AYOTTE. Thank you.

I also wanted to ask about an issue that has been brought to my attention at our shipyard as well, which is security personnel. This is the issue, obviously, of the gates and people who are manning the entry points in our shipyard. The concern that I had that has been raised with me is it is taking too long to recruit and train security personnel. I know that the Navy recognized this issue. It is something that I have also spoken to Vice Chief Admiral Howard about, that you raised the GS [general schedule pay] level for security personnel and created a career progression because one of the issues was keeping people in that position to pay the people in a way that they are going to stay and conduct these important security positions.

I understand the new policy is going to allow security personnel at Portsmouth and other shipyards the opportunity for career progression that did not exist with a fixed GS–5 position and that officers will be GS–7 positions, and supervisory police officers will have a GS–8 position.

Is that what you understand is the new policy? What impact is the policy having on attrition, and do we continue to have, still, challenges on the security for our shipyards?

Admiral SMITH. Yes, ma'am. We have redone the position descriptions for that. We are building the career path. We are still in the process of doing that. That is not a complete——

Senator AYOTTE. Okay. You have not put it in place yet.

Admiral SMITH. It is starting to roll out.

For example, you talk to the GS–5's. We now have the GS–6 in place. Folks will be evaluated and move up to GS–6. 7's are not in place yet. We have the 8. We are still in the process of building that in addition to then-CNO [Chief of Naval Operations] Greenert last summer directed that we hire another 1,461 security personnel because of the shortfall. We are still hiring to that.

From an enterprise perspective, we are doing pretty well. We are still struggling in the mid-Atlantic and New England. We are still struggling at Portsmouth. I know that. I am diving into that to figure out why, why am I being successful elsewhere but not being successful in Portsmouth.

Senator AYOTTE. Is the Navy prepared, if they have to, to address the career progression issue? I know you have gone to GS–6, but also I think looking at the progression issue, GS–7, GS–8 perhaps for the supervisory positions. Is this something you are going to continue? How fast do you expect implementing the rest of this policy and keeping a focus on those——

Admiral SMITH. The goal is to have the plan built by the end of June and then to start working our way into it as we get the hires and identify, based upon the requirements of each installation, who needs what resources based upon number of entry control points, amount of waterside property, those kind of things. We are still working to build a plan to understand where we need to put those positions at. I should have that done by the end of June.

Senator AYOTTE. Thank you. I appreciate it.

I see that Senator Ernst is here. I know that Senator Kaine has a couple. What I will do is I have a couple more questions. I will wait till the end. I believe the next would be Senator Ernst.

Senator ERNST. Thank you very much, gentlemen, for being here today. I apologize. We were talking about small arms modernization in the other subcommittee. Glad to join you.

I do appreciate your support. Shipyards—I will be honest. Not my thing in Iowa. If you want to talk about corn or soybeans, you know, that is awesome.

But public shipyards. Thank you. I know you are both very familiar with this. Thank you for holding this hearing.

Just for my information as well, the public shipyards are hiring thousands of additional workers to better match workforce with workload. What I have heard is that the process from application to the first day on the job—so filling out the paperwork, whether it is online, and then actually getting to work—that that is unnecessarily long and complicated for a lot of those workers.

As a result, we are losing some of our best applicants as they take other jobs that can hire them quicker. This is not just in this particular situation. I think it is DOD-wide.

Are you seeing this issue and are you concerned by it? I know they have to go through—what is the website? USA Jobs. Yes. Thank you very much. You are familiar with that. If you could talk a little bit about that issue, if you are concerned by it, and maybe the average wait time, if you are aware of that, from that time the applicant goes on line, fills out the application, until they are actually able to be hired.

Admiral HILARIDES. Yes, ma'am. We will talk the specific case of the shipyards. When we recognized how far behind we were and the need to hire that nearly 11,000 that we hired in the last 2 years, we went out and sought authorities and streamlined processes, everything from a physical—you got to get a physical. We hired extra doctors. We had to get clearances. The clearance system was bogged down. We helped them with contractors to go help boost their capacity to go process clearances. We specifically went

after all those barriers and got the shipyard hiring specifically because we had this tremendous challenge and hill to climb. We were able to get it down.

Routinely, however, I hear that same thing at my headquarters, at my field activities that the government hiring process is cumbersome and it takes a long time. We do lose some number of folks who apply for those jobs. We have a few silver bullets we can use, but we cannot use them all the time. I think that that is going to continue to be an issue is the amount of time it takes. When a company like a Google can show up at a college and make a job offer in a minute, I just do not have that opportunity. That will continue to be a challenge for us.

Admiral SMITH. I mean, from the Navy at large, DOD, we are seeing the same challenge. To Madam Chair's question on security, it is taking us 163 days to get a security officer on board. That is just way too long. Yes, ma'am. It is too long. We have got to get the process better.

Senator ERNST. That is pretty incredible. I know we do have an arsenal that sits between Iowa and Illinois, and we face some of those similar challenges as well. I have heard from workers there that maybe they have someone they would just love to see in their workforce. They encourage them to apply. They will apply online through the website, and it may be 6 months before they ever hear back from the entity that is hiring. That is too long. By then, those folks have already moved on. They have found other workforce opportunities. I do not think that that is acceptable that we are asking people to wait that long for these important positions. Yes, I am astounded. That should not happen.

Do you happen to know the reasons why it would take that long? Is it reasonable to expect people to wait that long to hear back on these types of positions?

Admiral HILARIDES. Those procedures have grown up over a lot of years. Some of the parts of it are extremely important. We have hired some people who we found out were bad people. In the last 2 years, we hired 2 people who turned out to be attempting to work for us to get inside to get information to sell to someone else. The security piece is absolutely essential. The same thing with the physical. You are going to put them in the bilge of a ship and hauling an 80-pound welding rig around, you want to make sure they are physically capable. Many parts of it are absolutely essential.

The parts that are not tend to be outside of our controls. The Navy is a big bureaucracy. Hiring a government civilian—you want to be a little careful as well because generally you are hiring that person for a long time. Very few people come into the government and leave just a couple years later. The number of people who come in our shipyards and stay for their entire career is a very large number—and other places. We end up being pretty careful.

I would say this. These jobs are attractive enough that if somebody really wants to come into the government, they wait. I do not think we are taking a really large hit on the quality. But it is frustrating, and I hate to get a new employee who just the first thing tell me as a leader is how frustrated they are at the selection process. Yes, ma'am.

Senator ERNST. Absolutely.

Are there any suggestions that you would make on how we can speed up the process? Like if you are buying a home, you can get prequalified on your loan while you are looking for a home. Is there anyway that you could prequalify individuals? Within a certain time frame maybe they get a physical and it is good for 6 months if they are looking for government employment. Are there ways that we could work with them?

Admiral SMITH. There are a lot of fingers, hands go into the hiring process. It is streamlining that process. There are things that as the commander, Admiral Hilarides or I can do within our command to improve our processes, but then we rely on others. I mean, one of the things we have done in going back to the security manning and hiring and the challenges we find in that is a potential employee would have to go out and get his eye exam. He would have to go out and get a health exam. He would have to go out and get this exam instead of coming in a one-stop shop. One of the things that we have done is now do a one-stop shop, and we have all the medical facilities and requirements there so they can come in and get it done at once. We are saving several weeks with that process. There are those kind of things out there.

I would submit, though, the biggest challenge is because there are so many hands in the pot trying to get that streamlined which a lot of that is not within our control as commanders of our organizations.

Senator ERNST. Is there anything that we could do as Congress that would help that, or is that beyond——

Admiral HILARIDES. The only other point I was going to make is that we use both the intern program. We have authority for interns. We do a temp worker program in the shipyards where we need a worker for a short period of time. They are sort of a probationary employee. They come in and you can let them go. Those tend to last a year. Those are the places where we do most of that prequalification. When there is a hiring, when hiring is available, often those temp workers will be brought in. That is a very good process by which the workforce sort of vets them and finds out if they are willing to work hard enough and all that sort of stuff. But those are really our workarounds.

I cannot point to an agency and say get rid of that agency. I probably should not.

Senator ERNST. Well, my time has expired. But I very much appreciate your expertise and your willingness to be here today. I am better informed, those of us that are not familiar with shipyards. I appreciate it. Thank you.

Thank you, Madam Chair.

Senator AYOTTE. Thank you, Senator Ernst.

I just want to share Senator Ernst's concerns about the hiring period, and I think that is a challenge. We want to get talented people in. This is something, of course, we would want to work with you on in any way we can assist with.

With that, I would like to call on Senator Kaine.

Senator KAINE. Thanks, again. Just a couple of points, but Senator Ernst made a good point in saying, well, I am from Iowa. We do not have a shipyard. I am from Virginia. I have been in our

shipyards a million times, but I am not a professional at it. I do not necessarily know what I am looking at.

But I will tell you it is something I would recommend to committee members on Armed Services. We do travel to other nations. Go look at another nation's shipyards. It was not until I went with Senator King of this committee to the Mazagon docks in Mumbai and looked at the Indian shipbuilding industry. They were so proud that two U.S. Senators would want to come see their shipbuilding operation. It was a fantastic visit. But, boy, when you saw that, now all of a sudden I could think about what I had seen at Newport News or at the Norfolk base and realize, wow, just in terms of the layout, so much more efficient—the layout and the scheduling of the work. They were basically doing things in a very odd set of structures that had been built for different kinds of ships. They were trying to build subs in there. It was just virtually impossible. They were proud to do and excited to show it off, but it really helped demonstrate what we had and what we sometimes take for granted.

Two really specific things: one about an old problem and one about a new opportunity.

Old problem: corrosion. I am amazed. You know, we have spent all this time battling about budgetary issues. I read GAO reports that say corrosion DOD-wide—$22 billion a year. Wow. $22 billion a year. As we get into sequester and some of the pressures that lead us to defer maintenance, that is a problem that can expand, not shrink. But if you could do innovative strategies to reduce the corrosion expenditure in DOD by a third, there is a whole lot of really important programs in the United States where we spend than $7 billion a year.

I am just wondering. I am really curious in what you do in your corner of the world, what are the kind of innovative strategies to deal with the corrosion problem, especially given some of the budget pressures that we have put on your shoulders.

Admiral HILARIDES. Sir, I will make sure you get an invitation to Megarust. We actually have a Navy conference called "Megarust."

Senator KAINE. Wow.

Admiral HILARIDES. We bring in Sherwin Williams, all the paint manufacturers. We bring in chemical companies and are actually looking at all series of formulations to go try to do that. Again, sea water, air, ships, vibration. There are a lot of reasons why there is a constant need for painting of ships.

Continually looking at better and better paint systems. One of those paint systems was pioneered up at Portsmouth Naval Shipyard, the high solids pain that we put in the ballast tanks on submarines, went from a 10-year period of painting it to a 15-year period which saves one entire paint cycle of a submarine over the course of its life.

We put a lot of effort into it. I spend way too much time on rust, and so I am right with you, sir. We are looking for industry to help us out as much as possible.

Senator KAINE. That is great.

Another area of industry—I am going to go to the new opportunities side because the hearing is about sort of investment strategies.

We have a lot of innovative private sector folks in Virginia in the additive manufacturing or 3D printing area. I understand that the Navy has used 3D printing technologies to do on shipboard production of some parts that can be used so you do not have to fly parts in to a ship. Talk a little bit about 3D printing and the kind of investment going forward especially for on-time, on-ship production of critical components.

Admiral HILARIDES. Yes, sir. We actually have a lot of research inside the entire Naval Sea Systems Command enterprise and across the Navy on additive manufacturing. Our principal challenge is almost all the things that we need that are critical are made of some material that is not plastic, some alloy of some metal. Right now, the research is going on. Even if you alloy a steel and you three-dimensionally print it, the atoms go in in the sequence the printer puts them in.

When we manufacture that piece of steel otherwise, it gets worked. It gets heat-treated, and we know its properties very well. We are actually now characterizing additive manufacturing metal properties because I cannot certify that part out of that printer until I know its metal properties. We actually have a significant body of research going on in the Naval Sea Systems Command to go characterize the strength of particularly the metals to go make sure that we can then start to use it. It is holding us back a little bit, but it is fundamental research that has got to be done before you can say that part is ready to go in that nuclear reactor or in that gun system or in that kind of critical thing. We are working on it full speed, though, and wherever we can, we qualify the process and the fleet is already using those systems.

Senator KAINE. Great. Thank you both very much.

Senator AYOTTE. I just have one final question for you, Admiral Smith. One of the issues that I had focused on as well is our servicemembers and our DOD civilians, you know, the jobs that they are doing—is ensuring that they have access to good, affordable child care. Obviously, those who serve our country—it is really important that they have access to this so that they can do their jobs.

Unfortunately, at Portsmouth, one thing I learned is that there were over 160 families waiting average of almost 300 days to get their children into care there. This is something I have been focusing on not only for Portsmouth but thinking across DOD.

The Navy told us yesterday that they believe that wait times at Portsmouth had been reduced about 3 months, but we also had my staff call Portsmouth and find out. What we learned was that depending on the category of individual, wait times can still be as long as a year.

I just wanted to follow up with you. I know the Navy has said that you are looking at plans to install military learning centers at Portsmouth to reduce the child development center wait list and wait times. I wanted to get an update on that. Obviously, I know that this is an issue at other naval installations. If you can give me an update on Portsmouth and then just an overall Navy view of where we are on these issues.

Admiral SMITH. Yes, ma'am. Absolutely.

You are right. It depends. We will talk Portsmouth. Like any CDC [Child Development Centers], the wait list varies on the age of the child and spaces available. The average wait list right now is 7 months up at Portsmouth. The high was 10. It is down to 7. But that goes to some folks who were waiting a year, some folks less.

For the MLCs [Military Learning Centers], we are still working through that process. They will be on the ground, installed. We are targeting the end of this fiscal year three to four MLCs will be there. Depending how you configure them, whether you configure them for an infant, 1-year-old, or an older child, they can accommodate anywhere from 8 to 24 children. We will hire some additional staff members to man those up, nominally four per MLC with the final number being depending how we configure it.

Senator AYOTTE. So—I am sorry. Go ahead.

Admiral SMITH. You were coming with a question.

Senator AYOTTE. No. It just occurred to me with all the new hiring, this is going to be a bigger issue.

Admiral SMITH. Absolutely. I will say, though, that is not appropriated fund [APF] hiring. It is a little bit different from APF, and it is a bit easier to hire on the NAF [non-appropriated funding] side.

That is where we are at with Portsmouth.

From a big picture, so we have got 120-plus CDCs across our 70 installations. We have 57,000 spots in those CDCs. We have created an additional 7,000 since 2009. We created those additional 7,000 to get us down to the DOD target of a 3-month wait list. The Navy is meeting the 3-month wait list overall. We have 16 installations, Portsmouth being one of them, that is not meeting that 3-month.

Senator AYOTTE. Well, I really would appreciate, obviously, the focus on getting the military learning centers up and running as soon as possible at Portsmouth. Then having been there, we need to get to a new facility that has more capacity in the long term. I look forward to continuing to remind you of that issue.

Admiral SMITH. Yes, ma'am.

[Laughter.]

Admiral SMITH. We are finishing up the engineering studies right now to put in the pads, and then it will take about 3 to 4 months to get the MLCs there installed, upgraded, and ready to go.

Senator AYOTTE. Okay. Thank you. I appreciate it.

I want to thank you both for being here and for your service to the country. Again, I want to thank you, Admiral Hilarides, for your leadership and for your dedicated service for decades to our country. Will you please pass along to your family how grateful we are for all that they have done as well?

Admiral HILARIDES. Will do.

Senator AYOTTE. Thank you.

[Whereupon, at 3:52 p.m., the hearing was adjourned.]

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

DRY-DOCKS

1. Senator AYOTTE. Admiral Hilarides and Admiral Smith: How important are the dry-docks at our public shipyards to the Navy and our nation?

Admiral HILARIDES and Admiral SMITH. The ability of the public shipyards to fulfill their mission of executing depot-level nuclear ship maintenance is highly dependent on the condition of dry docks along with related facilities, including piers, nuclear facilities, production shops, and utilities. Without dry docks, all required depot-level submarine, aircraft carrier, and ship maintenance cannot be accomplished.

As for their importance to the nation, the execution of submarine, aircraft carrier, and ship depot-level maintenance is essential to national defense, and the continued availability of dry dock capacity is essential to ensure an effective and timely response for mobilization, national defense contingency situations, and other emergency requirements.

Senator AYOTTE. My sense is that naval shipyard dry-dock capacity is substantially inadequate to serve the future life-cycle depot-level maintenance needs of the U.S. Navy fleet. This means that significant investment in dry-dock facilities at our four public shipyards is necessary. I understand that more than $2.3 billion is needed in dry-dock construction and modernization might be needed at the four public shipyards.

2. Admiral Hilarides and Admiral Smith: Can you describe the need for dry-dock construction and modernization?

Admiral HILARIDES and Admiral SMITH. Naval shipyard dry dock concerns are being driven by the following:

1. New ship characteristics render some dry docks obsolete.
2. Unprecedented Inactivation and Reactor Compartment Disposal workload (SSN 688 class and CVN 65 and 68 class) over the next three decades.
3. Environmental vulnerabilities (seismic and flooding) have the potential to cause loss of critical facilities.
4. All dry docks require periodic maintenance and repair to maintain certification.

The estimated costs are pending the completion of the ongoing Dry Dock Modernization study. Cost estimates are impacted by pre-construction site studies, such as National Environmental Policy Act requirements, class maintenance plan changes, workload forecasting between public and private shipyards, and improved depot maintenance performance.

3. Senator AYOTTE. Admiral Hilarides and Admiral Smith: How does the Navy plan to resource this requirement without crowding out other required military construction projects?

Admiral HILARIDES and Admiral SMITH. Modernizing naval shipyard dry docks is required to mitigate future obsolescence due to modern ship characteristics and workload, such as recycling aircraft carriers, as well as mitigating seismic and flooding vulnerabilities. However, the Navy is still in the process of evaluating all available courses of action to ensure Naval Shipyards maintain mission capability. The options being considered include modifying dry docks to increase capacity, using floating dry docks, and upgrading dry dock utility systems.

MARITIME SECURITY BARRIERS

Senator AYOTTE. Admiral Smith: During Tuesday's hearing you testified that "shipyards have harbor security barrier around it, as do our installation piers. But what we have right now does not meet the requirement for high-speed boats that could be used for a terrorist attack. We're looking for next (generation barrier)."

4. What is the Navy's plan to procure next generation barriers?

Admiral SMITH. We have an ongoing next generation barrier pilot project at Naval Station Norfolk. This pilot will run throughout fiscal year 2016 with final evaluation and recommendations complete in April 2017. The next step is to use results of this pilot to develop detailed performance specifications and an acquisition strategy.

P–371 UTILITY INVESTMENT FOR NUCLEAR FACILITIES

5. Senator AYOTTE. Admiral Hilarides and Admiral Smith: Why is the P–371 utility investment MILCON project at Portsmouth Naval Shipyard that the Navy has requested funding for in fiscal year 2017 needed?

Admiral HILARIDES and Admiral SMITH. P–371 (Utility Investment for Nuclear Facilities) is primarily focused on mitigation of risks to existing utility systems, primarily electrical, that provide services to nuclear submarines in Dry Dock 1 or pier side. In addition to electrical enhancements, the project improves steam, compressed air, and water distribution capabilities to Berths 1 and 2 adjacent to Dry Dock 1. The project increases utility system reliability and resiliency, and improves energy efficiency via modern equipment and technology. The project was developed as a consequence of failure analysis of potential risks attributed to the current system condition. This project will improve the Portsmouth Naval Shipyard utility infrastructure and meets the recently adopted standby power requirements for nuclear powered warships.

OPTIMIZED FLEET RESPONSE PLAN (O–FRP)

Senator AYOTTE. Under the Navy's new force generation model, the Optimized Fleet Response Plan (O–FRP), all the ships in a strike group need to come out of maintenance at roughly the same time. However, the first carrier, which will deploy under O–FRP later this year, USS *Eisenhower* (CVN 69), overran its latest 14 month maintenance period by 9 months when it concluded last August. *Eisenhower* is just the latest example in a pattern of aircraft carrier maintenance delays in public shipyards.

6. Admiral Hilarides and Admiral Smith: Can you comment on the schedule-dependent nature of O–FRP and what steps you have taken to ensure aircraft carriers finish availabilities on time?

Admiral HILARIDES and Admiral SMITH. Increased deployment lengths have resulted in a maintenance backlog prior to entering an availability that has not been fully identified or resourced, which has resulted in extended maintenance periods to restore their material readiness.

The increased operational tempo of the last 10 years and the effects of sequestration on our shipyard workforce, coupled with a fixed capacity industrial base (both public and private) has resulted in lengthened maintenance schedules and delayed availability completions. As detailed in the responses to Questions #10 and #11, the Navy's life cycle activities are all working with the maintenance community at large to ensure the execution plans for the maintenance requirements are providing the "best value" and take the industrial base's constraints into account.

To address these issues, the Navy began implementing a revised operational schedule in November 2014 referred to as the Optimized Fleet Response Plan (OFRP). The Navy is in the process of applying an OFRP process to all of our force elements to include carrier strike groups, amphibious-ready groups, submarines, expeditionary units, aviation squadrons, and Military Sealift Command ships. OFRP is designed to achieve a number of benefits, including service readiness recovery and a sustainable level of employability to support combatant commander demand. OFRP seeks to provide a more sustainable schedule for Navy ships, as it holds deployment lengths constant and introduces more predictability for maintenance and training. Improved scheduling through OFRP will provide stability to our sailors and improve the ability of our public shipyards and private ship repair companies to plan and schedule maintenance. OFRP is still in its early stages of implementation and will take time to create positive change. As of January 2016, no aircraft carriers and only 15 of 83 cruisers and destroyers had completed a Chief of Naval Operations' maintenance availability under OFRP.

DEFINING MAINTENANCE REQUIREMENTS

Senator AYOTTE. In May 2015, GAO found that incidents of degraded or out-of-service equipment have doubled on surface and amphibious ships over the past 5 years (GAO–15–329). According to Navy officials, we are now paying for the deferred maintenance and increased use of the surface force over the last decade. In addition, officials state that deferred maintenance is not just postponed, but also increased as corrosion weakens structural aspects of the ship (a compounding effect referred to as the "fester factor").

The Navy has been struggling to adequately define maintenance requirements which are key to completing maintenance on time. GAO's preliminary analysis showed that from fiscal years 2011 to 2014, aircraft carriers and surface combatants required 16 and 34 percent more work, respectively, than estimated by the Navy.

7. Admiral Hilarides and Admiral Smith: Please discuss the impacts of deferred maintenance on the Navy's ability to accurately predict the duration and cost of ship maintenance?

Admiral HILARIDES and Admiral SMITH. The Navy maintenance budget requests are built based upon independently certified models reflecting engineered maintenance plans for each ship class. Those engineered maintenance plans include what and when certain maintenance should be performed in support of the ship reaching its expected service life. When that maintenance is deferred, deviating from those plans, uncertainty is introduced and the engineering analysis used to predict ship material condition and determine the required maintenance may be invalidated.

There are systems where inspections to determine their actual condition are not possible until the ships are in the maintenance availability, particularly in dry dock. For example, many portions of ships' hulls are not accessible unless the ship is in dry dock. The paint used on these surfaces are known to last at least the planned eight years between dry docking availabilities, when repainting is scheduled in the engineered maintenance plan. If deferred to nine years, one ship may have no issues, but another may have significant corrosion damage requiring significant time and funding resources for additional repairs.

8. Senator AYOTTE. Admiral Hilarides and Admiral Smith: Please discuss the risk posed by the magnitude of the surface fleet's deferred maintenance on its ability to achieve the CNO's goals for operational availability?

Admiral HILARIDES and Admiral SMITH. The Navy's plans to reduce and minimize future deferred maintenance in the surface fleet are aligned with the CNO's goals for operational availability as reflected in the Optimized Fleet Response Plan (O–FRP). O–FRP allows us to recover material readiness "in-stride" while providing an agreed to level of presence to the combatant commanders. It protects the time required to properly train our sailors, maximizes the employability of our operational units for both sustainable global presence and contingency response, gives our sailors and their family's predictable deployment schedules, and preserves our force structure so that it meets service life expectations. If the Navy cannot reduce the magnitude of the surface fleet's deferred maintenance, we will continue to have difficulty completing maintenance on time without disrupting O–FRP schedules and negatively impacting training and certification, surge availability, and overall readiness.

9. Senator AYOTTE. Admiral Hilarides and Admiral Smith: How long will it take to remedy the surface fleet's deferred maintenance backlog?

Admiral HILARIDES and Admiral SMITH. The President's Budget for 2017 and the Future Years Defense Program (FYDP) supports continued efforts to work through the maintenance requirements and address the maintenance backlog to reset the force. Full recovery of the material readiness of the fleet is likely to extend beyond 2020. Stable funding, improvement in the on-time execution of ship depot maintenance and steady state operations are required to meet fleet readiness goals.

10. Senator AYOTTE. Admiral Hilarides and Admiral Smith: What is the navy doing to improve its definition of maintenance requirements?

Admiral HILARIDES and Admiral SMITH. The various platform life cycle planning activities ensure that Class Maintenance Plan requirements are assigned at the correct level (Organizational (Ships Force), Intermediate (Intermediate Maintenance Facility), and or Depot (Naval or Private Shipyard) to enable proper accomplishment, taking into consideration applicable laws, urgency, priority, crew impact, capability and total cost. Maintenance procedures and schedule for Navy ships and related equipment are developed and performed per condition-based maintenance (CBM) methodology. The goal is to perform maintenance only when there is objective evidence of actual or predictable failure of a ship's installed systems or components, while ensuring operational readiness, safety, and equipment reliability in a cost effective manner. This is determined by approved reliability-centered maintenance (RCM) methodology by the command exercising technical authority for the system or component. The planning activities continually collect and evaluate Material Condition Data, Performance Monitoring Equipment data, Component Casualty Reports and accomplish Reliability Centered Maintenance Workshops / Maintenance Effectiveness Reviews (MERs). This is a continuous validation and refinement of Maintenance Plans using Reliability Centered Maintenance Principles coupled with Engineering Analysis, Configuration Data, Material Conditions, and Job Completion Data, which provides the outputs of 1) What to do: Inspect, Test, Restore, Replace, etc., 2) When to do it: Time Based, Condition, or Situation Based, and 3) Who to do it: Depot, Intermediate or Ship's Force.

11. Senator AYOTTE. Admiral Hilarides and Admiral Smith: What progress has the Navy made in limiting the amount of growth and new work in its ship maintenance availabilities?

Admiral HILARIDES and Admiral SMITH. The various life cycle planning activities, including Submarine Maintenance Engineering Planning and Procurement Activity (SUBMEPP), Surface Maintenance Engineering Planning Program Activity (SURFMEPP) and Carrier Planning Activity (CPA), accomplish post-completion reviews of their respective platform availabilities, review the fidelity (scope) of existing maintenance requirements and analyze the growth and new work items that were accomplished for possible addition as new requirements in future availabilities.

As an example of this process, the CPA is working with the entire maintenance community, including technical warrant holders, to focus efforts on future improvements, including; 1) the Availability Work Package Development Knowledge Sharing Network (KSN) where working groups review recent availabilities growth/new work and develop mitigation plans to support future availabilities, 2) the Remaining Service Life KSN, which focuses on specific systems and components, and 3) the Industrial Material Processes KSN, which addresses material issues, and planned equipment replacement program improvements.

CONSTRUCTING NEW BUILDINGS

12. Senator AYOTTE. Admiral Smith: As the Navy conducts new construction and major renovations, in terms of bathrooms and locker rooms, what assumptions are made regarding the ratio of men and women?

Admiral SMITH. Navy shore engineers continually assess existing facility capacity and configuration in order to meet requirements. Prior to constructing or renovating a facility, the end user provides the actual number and gender of personnel to be supported. The shore establishment then determines bathroom and locker room capacity/configuration. Specific plumbing fixture allowances and criteria for these facilities are then determined through tables found in the DOD's Unified Facilities Criteria (UFC).

INTEGRATED LODGING PILOT PROGRAM

Senator AYOTTE. Admiral Smith: As you know, on January 27, I wrote to you about the conditions at the Navy Gateway Inns and Suites in Norfolk at Scott Center Annex that many of my constituents have had to endure while conducting TDY.

Some of my constituents, preparing to conduct maintenance on nuclear-powered submarines the next day, had to sleep in their cars due to elevated temperatures.

I appreciate your February 11 response, and I appreciate that you took the time to visit the facility. However, I am concerned that you are saying the temperature problem in the rooms will not be addressed until 2018.

13. Admiral Smith: What can we do to expedite this necessary solution?

Admiral SMITH. The Navy is developing a project to repair/modernize Bldg 1530. Pending funding availability, we anticipate award in fiscal year 2017. In the event of unseasonable weather impacting room temperatures, the lodging staff will offer to move guests to another NGIS building at Norfolk Naval Shipyard or provide a certificate of non-availability to allow use of commercial lodging options.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, APRIL 12, 2016

U.S. SENATE,
SUBCOMMITTEE ON READINESS
AND MANAGEMENT SUPPORT,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

MILITARY CONSTRUCTION, ENVIRONMENTAL, ENERGY, AND BASE CLOSURE PROGRAMS

The subcommittee met, pursuant to notice, at 2:32 p.m. in Room SR–232A, Russell Senate Office Building, Senator Kelly Ayotte (chairman of the subcommittee) presiding.

Committee members present: Senators Ayotte, Ernst, McCaskill, Shaheen, Hirono, and Kaine.

OPENING STATEMENT OF SENATOR KELLY AYOTTE

Senator AYOTTE. Good afternoon. I want to thank all of you for being here.

This hearing on the Subcommittee on Readiness and Management Support will come to order.

I want to thank Ranking Member Kaine for your leadership on defense issues, including infrastructure, energy, and environmental programs, which is what our hearing is about today.

We are joined this afternoon by Mr. Peter Potochney, performing the duties of the Assistant Secretary of Defense for Energy, Installations and Environment. We are joined by Assistant Secretary of the Army for Installations, Energy and Environment, the Honorable Katherine Hammack. Wonderful to see you, Secretary Hammack. We are also joined by Secretary McGinn and certainly the Assistant Secretary of the Navy for Energy, Installations and Environment. We are joined by Assistant Secretary of the Air Force for Installations, Environment and Energy, Secretary Ballentine. So thank you all for being here today and for your service to our country. We really appreciate it.

As we prepare for the committee markup of the National Defense Authorization Act, the focus of today's hearing is on the state of our military installations and the administration's budget request for military construction, facilities sustainment and restoration, energy projects, and environmental remediation and management. As I

have said before, well maintained and modern Department of Defense installations are critical to maintaining the readiness of our armed forces.

That is why we must carefully scrutinize the Department's military construction and facilities sustainment, restoration, and modernization funding requests. While we must continually root out waste and inefficiency and scrutinize the need for every proposed project, I am concerned that a defense budget based on artificial budget caps, rather than our national security interests, is forcing each of the services to postpone important facility projects that our troops need.

The services are being forced to take risks in facility investments in order to understandably prioritize near-term readiness requirements for our men and women in uniform. One of the purposes of this hearing is to better understand the consequences over time of underfunding facility accounts.

As you point out in your written testimony, Mr. Potochney, almost 27 percent of the Department's facility inventory is in poor or failing condition. The condition of readiness centers in New Hampshire is particularly unacceptable. According to the December 2014 Army National Guard study, the average condition index of New Hampshire Army National Guard readiness centers is poor, 64 out of 100 scale, ranking New Hampshire 51 out of 54 States and territories that have been evaluated nationwide.

After repeatedly raising concerns about the need for military construction projects in New Hampshire to support our Army National Guard, I am very, very pleased that the Army has requested funding for much needed vehicle maintenance shops in Hooksett and Rochester for fiscal year 2017. So I thank you for that.

I also look forward to authorizing those needed projects in this markup, as well as projects at the Pease Air National Guard Base, Portsmouth Naval Shipyard, and other bases around the country in my Readiness Subcommittee mark and working with my colleagues to provide timely funding.

I look forward to discussing some budget requests that require additional scrutiny, including the request for $6.1 million for a microgrid project in California that Department documents say will support nonessential functions. So I would like to understand more about that request.

While I recognize that the Obama administration has once again requested another round of base realignment and closure, BRAC, I continue to oppose another BRAC round for many reasons. As I have said before, according to the Government Accountability Office, the 2005 BRAC round process cost 67 percent more than originally anticipated, and even after acknowledging the shortcomings of the 2005 round, the Department continues to request another BRAC round. I do not want to give the Department the open-ended authority to pursue another BRAC round that will potentially incur significant upfront costs when we do not have the room in our budget in the next few years to afford many fundamental readiness investments that are right before us.

Also, our military is currently sized based on artificial budget caps, instead of being sized to protect our national security interests from the threats we face, and certainly we have had testimony

before this committee by the Vice Chiefs of Staff of each of our forces discussing the concerns they have about the size of our force and our readiness. In short, there is a significant and dangerous gap between the military we have and the military we need.

Therefore, I do not believe at this point it makes sense to authorize a round of base closures when many of us are hopeful that regardless of the outcome of this coming election, that the next administration will align its proposed defense budget and the size of our military to the growing threats we face and we will need many of the bases that DOD [Department of Defense] may currently want to close.

I will also say it will be up to us in the Congress to address sequestration and to make sure that sequestration does not go back into effect. We will need to do that on a bipartisan basis, and I look forward to working on that.

So I will not be including the authority to conduct a BRAC round in the Readiness Subcommittee mark of the National Defense Authorization Act for the Fiscal Year of 2017.

Regarding environmental programs, I look forward to getting an update from you, Secretary Ballentine, regarding the recent agreement with the City of Portsmouth, as well as the Air Force's compliance with the Environmental Protection Agency's directive to restore the Pease aquifer. I appreciate that the Air Force has really negotiated with the city to come to this outcome, and I look forward to hearing about it.

I look forward to the testimony of our witnesses and to continuing our work together to ensure that each of the service's military construction, energy, and environmental programs are well designed and appropriately funded to support our servicemembers, military families, combat readiness, and our national security.

I thank our witnesses again for being here today and for their leadership and service to our country in challenging times. I look forward to your testimony.

With that, I would like to call on my ranking member, Senator McCain—Senator Kaine. I made him chairman already.

[Laughter.]

Senator AYOTTE. Senator Kaine for his opening statements. Thank you, Senator Kaine.

STATEMENT OF SENATOR TIM KAINE

Senator KAINE. Thank you, Madam Chair.

To all my colleagues, I was at my son's graduation from the basic school, and it was a massive crowd. They started to introduce dignitaries in the audience, and they said, and we have Senator McCain here. Really?

[Laughter.]

Senator KAINE. Why did Senator McCain come to the graduation? Oh. Okay. So at my own son's graduation, I was introduced as Senator McCain. But I am used to that now, I guess.

But I want to thank you all for coming. This is an important hearing, and it is all to prep for the work that we will be doing shortly in this room and the room around the corner on the NDAA [National Defense Authorization Act].

The administration budget request is $7.4 billion for MILCON [military construction] and family housing, and another $10.2 billion for facilities sustainment and modernization. Both of these numbers are $1 billion less compared to last year's request.

Now, last year, the administration requested more than the budget caps and got grief for that. This year, the administration's requests are in accord with the budget deal, and we will give you grief for that. But it all goes for the proposition that we recognize that sequester and the budget caps put you and put the national defense under a straightjacket that it is our responsibility, working with our colleagues, to ameliorate and hopefully lift. If we do not reach a deal to repeal sequestration, our military end strength, our readiness, our modernization all suffer, and in our installations, the readiness account items start to really, really degrade. Then it will cost us more to bring them back to where they should be. So we appreciate the service you provide, and we are going to get into this today.

Many of you have significant expertise for energy programs. I just want to say a word about that. The DOD is the biggest energy user in the Federal Government. I am happy—I have been happy—to see the degree of forward thinking in the DOD about energy usage. Alternative energy strategies, pursuing sort of third-party financed energy, alternative energy, real energy projects at little or no cost to the DOD is a significant item that you have been working on.

The Air Force has established an Office of Energy Assurance and leveraging lessons learned there. The Air Force is developing a solar array at Nellis. I want to understand more about that and think that that can be important because that will insulate the base and provide protection in case the grid were to go down. We need to worry about those eventualities.

The Army has a biomass project in New York which could enable Fort Drum to operate completely independently off the grid.

These are example, I think, of smart investments that can give us resilience.

These operational energy investments are not only important for costs and resilience, but they have a direct impact on our warfighting mission. History provides a lot of lessons here. During Operation Iraqi Freedom, 20 percent of our casualties came from units having to protect resupply convoys, of which 70 to 80 percent of those resupply convoys were water and fuel restocking. The USS *Cole* was bombed while it was in refueling. If we can mitigate those kinds of risks to sailors and marines, by having hybrid electric drives enabling ships to steam farther on the same amount fuel, then it reduces risk of the most dangerous kind. So we need to increase our energy across the DOD spectrum. I know we will talk about that today.

The Marine Corps is investing in fascinating technologies in this regard, not just to protect ourselves, but to engage in better warfighting, solar powered unmanned aircraft which can identify and then use thermals to sail off even longer for as long as 20 hours per day, advancing our defense mission.

then finally, there is a number of items underway in each of the service branches to deal with the effect of climate change on our

installations and infrastructure. I have a real sensitivity about this because of the effect of climate and sea level rise, especially upon the largest naval installation in the world in Hampton Roads, Virginia. It is a region that is the second most vulnerable to sea level rise in the United States after New Orleans. Currently the main Norfolk road in and out of the largest naval base in the world is going to be inundated by normal daily tides 2 or 3 hours a day by 2040, and that does not even take into account storm conditions, which are getting more and more frequent.

I associate myself with sort of the punch line of the chairwoman's comments about BRAC and maybe from a slightly different angle.

I think the military is assessing that you may have 15 to 20 or even 25 percent of excess infrastructure. Now, that is a cost. If we are spending a cost on something that is truly excess, then there is money we are spending on things we should not and there would be a higher and better use to spend it on things we should.

My own experience with BRAC as a mayor and governor convinced me that there has got to be a better way to rationalize excess infrastructure. I have tended to be of the belief that the military should make recommendations to us about infrastructure the way they make recommendations about pay and benefits or weapon systems or a whole lot of things. You know what happens. You make these recommendations to us and we ask you a lot of tough questions, and we sure do not agree with all of them. We may agree with two-thirds of them. We may agree with three-quarters of them. This is a hard dialogue.

But the BRAC process, from the standpoint of somebody who has been a mayor and governor, basically is this. The Federal Government will declare a need for a BRAC. Every city and county in the United States that has any military asset then has to hire lawyers and lobbyists to do a full court press to protect their base, even if their particular installation is not at all in jeopardy. But it would be political suicide for local officials or State officials not to put on the full court press to protect an installation, even it was not in jeopardy on the off chance that, at the end of the day, there would be a decision made about it, and the local officials would say, well, gosh, why did you not do anything about this?

So what BRAC becomes is just this massive lobbyist and lawyer effort that is largely unnecessary. The military has great expertise. You are no more omniscient or perfect than any of us are. You might make recommendations that we would disagree with for maybe the wrong reasons or we might disagree with them for the right reasons.

But I would love to move to a situation where we rationalize our infrastructure investments, even including closures, with the basic recommendations that are based on the expertise within DOD and then allowing Congress to do what we do, which is kick them around and criticize them. We will embrace some of them and we will reject others. I think that would be a much better way to look at the rationalization of infrastructure, and that is why I want to support the chairwoman when we get into the mark with respect to a BRAC round.

But a lot of important issues to talk about. We appreciate your service, and we are looking forward to hearing your testimony and asking questions.

Senator AYOTTE. Thank you, Senator Kaine.

I would now like to call on Mr. Potochney for his testimony. Thank you.

STATEMENT OF PETER J. POTOCHNEY, PERFORMING THE DUTIES OF ASSISTANT SECRETARY OF DEFENSE FOR ENERGY, INSTALLATIONS AND ENVIRONMENT

Mr. POTOCHNEY. Thank you, ma'am. Good afternoon, Chairwoman Ayotte and Ranking Member Kaine and distinguished members of the committee.

My name is Pete Potochney. I am proud and honored to be here. I am currently the Deputy Assistant Secretary for Basing, and so I know a little bit about BRAC because I have been doing BRAC for quite a while. But I am also performing the duties of the Assistant Secretary for Energy, Installations and Environment, and in that capacity, I am sitting here in front of you this afternoon. I have been in that capacity since December and will probably remain for a little while.

I will make three quick points, and they piggyback onto the points that both the chairwoman and ranking member just made.

The budget situation we are in right now is critically impacting us, and it is obvious. Everybody knows it. Yet, here we are. Facilities do have a direct impact on our warfighting capability, quality of life of our personnel, our families, retention, everything. But we do enjoy less of a priority than operational requirements that are more directly related to readiness. For that reason, we choose to accept risk in our facilities, and that is why we pay, I would argue, a disproportionate share of the cuts that we are experiencing right now, but that is the way it should be.

The second point I would make that flows from that is the people sitting around this table facing you right now. We are the advocates for our facilities. We are not the warfighters. So we are the people who are trying like hell to make sure that the Department exercises informed decision-making and that decision-making is informed by the facts of how important our facilities are. Yet, we compete for resources like everyone else.

The third point I will make—and it piggybacks on both what you said but it runs counter to it—is that we do need BRAC. We do need to avoid wasting the precious funding that we do get on facilities that we do not need. I think all the services would benefit from an examination, a holistic examination of their infrastructure compared to their force structure and their projections for that force structure in a process that treats all bases equally, fairly, in a way that Congress has oversight and an independent commission reviews it, although, Senator Kaine, I appreciate your comments about BRAC being—I do not want to put words in your mouth, but BRAC being very difficult on communities. You are absolutely right. But I would argue it is so important that it has to be, and we need a process that will allow us to conduct that kind of rigor that those communities and the Congress deserve. That is my final point.

I appreciate the opportunity to be here. Thank you.
[The prepared statement of Mr. Potochney follows:]

PREPARED STATEMENT BY MR. PETE POTOCHNEY

INTRODUCTION

Chairman Ayotte, Ranking Member Kaine and distinguished members of the subcommittee: Thank you for the opportunity to present the President's Fiscal Year (FY) 2017 Budget request for the Department of Defense programs supporting energy, installations, and the environment.

In my testimony, I will focus first on the budget request. As you will note, the Administration's budget includes $7.4 billion for Military Construction (including family housing), and $10.2 billion for Facility Sustainment and Recapitalization. These are both decreases from last year, as the Bipartisan Budget Act of 2015 caps overall defense spending. Although this request allows a reduction in facilities risk due to a slight increase in Sustainment funding by the Services, the Department is still accepting risk in facilities. As this Subcommittee well knows, facilities degrade more slowly than readiness, and in a constrained budget environment, it is responsible to take risk in facilities first.

My testimony will also address the environmental budget. This budget has been relatively stable, and we continue to show progress in both our compliance program, where we've seen a decrease in environmental violations, and in cleanup, where 84 percent of our 39,000 sites have reached Response Complete. We remain on track to meet our goals of 90 percent Response Complete in 2018, and 95 percent in 2021.

As you know, Operational Energy Plans and Programs merged with Installations and Environment office in 2015 to form the Office of Assistant Secretary of Defense for Energy, Installations and Environment (EI&E). EI&E now oversees all energy that is required for training, moving and sustaining military forces and weapons platforms for military operations, as well as energy used on military installations. While the budget request for Military Construction and Environmental Remediation programs includes specific line items, the Department's programs for Operational Energy and Installation Energy are subsumed into other accounts. With that in mind, I will summarize the newly released 2016 Operational Energy Strategy and address the budgets for the Department's operational and installation energy portfolio.

In addition to budget, I will also highlight a handful of top priority issues—namely, the Administration's request for BRAC authority, European consolidation efforts, European Reassurance Initiative, the status of the movement of marines from Okinawa to Guam, an overview of our energy programs, and climate change.

FISCAL YEAR 2017 BUDGET REQUEST—MILITARY CONSTRUCTION AND FAMILY HOUSING

The President's Fiscal Year 2017 Budget requests $7.4 billion for the Military Construction (MilCon) Appropriation—a decrease of approximately $1.0 billion from the fiscal year 2016 budget request (see Table 1 below). This decrease is directly attributable to the resourcing constraints established by the Bipartisan Budget Agreement and the Department's need to fund higher priority readiness and weapon's modernization program. The request does recognize the Department's need to invest in facilities that address critical mission requirements and life, health, and safety concerns, while acknowledging the constrained fiscal environment. In addition to new construction needed to bed-down forces returning from overseas bases, this funding will be used to restore and modernize enduring facilities, acquire new facilities where needed, and eliminate those that are excess or obsolete. The fiscal year 2017 MilCon request includes projects that directly support operations and training, maintenance and production, and projects to take care of our people and their families, such as medical treatment facilities, unaccompanied personnel housing, and schools.

As shown by the decrease in this year's budget request, the DOD Components continue to take risk in the MilCon program in order to lessen risk in other operational and training budgets.

While the Department's fiscal year 2017 budget request funds critical projects that sustain our warfighting and readiness postures, taking continued risk across our facilities inventory will degrade our facilities and result in the need for significant investment for facility repair and replacement in the future. Our limited MilCon budget for fiscal year 2017 leaves limited room for projects that would improve aging workplaces, and therefore, could adversely impact routine operations and the quality of life for our personnel.

Table 1.—MilCon Appropriation Request, fiscal year 2016 versus fiscal year 2017

Account Category	FY 2016 request ($ millions)	FY 2017 request ($ millions)	Change from FY 2016	
			Funding ($ millions)	Percent
Military Construction	6,653	5,741	(912)	(14%)
Base Realignment and Closure	251	205	(46)	(18%)
Family Housing	1,413	1,320	(93)	(7%)
Chemical Demilitarization	0	0	0	0%
NATO Security Investment Program	120	178	58	48%
TOTAL	8,437	7,444	(993)	(12%)

Military Construction

The fiscal year 2017 military construction request of $6.1 billion addresses routine requirements for construction at enduring installations stateside and overseas, and for specific programs such as Base Realignment and Closure and the NATO Security Investment Program. This is a 13 percent decrease from our fiscal year 2016 request, and this level of funding remains significantly less than historic trends prior to the Budget Control Act. In addition, we are targeting MilCon funds to three key areas.

First and foremost, our MilCon request supports the Department's operational missions. MilCon is key to supporting forward deployed missions as well as implementing initiatives such as the Asia-Pacific rebalance, European Infrastructure Consolidation, European Reassurance Initiative, and cyber mission effectiveness. Our fiscal year 2017 budget request includes $473 million for 13 F–35A/B/C maintenance, production, training, and support projects to accommodate initial F–35 deliveries; $194 million to support 8 fuel infrastructure projects; $62.2 million for a power upgrades utility project in support of the U.S. Marines relocation to Guam; $260 million for recapitalization of National Security Agency facilities; and $53.1 million for the third phase of a Joint Intelligence Analysis Complex Consolidation at Royal Air Force Croughton, United Kingdom. The budget request also includes $470 million to address new capabilities/mission, force structure growth, and antiquated infrastructure for Special Operations Forces; $176 million for 3 Missile Defense Agency projects, including $156 million for Phase 1 of the Long Range Discrimination Radar System Complex in Alaska; a $76 million investment to recapitalize facilities at three Naval Shipyards; and $124 million for 4 unmanned aerial vehicle operational facilities.

Second, our fiscal year 2017 military construction budget request continues the Department's 10 year plan (which started in fiscal year 2011) to replace and recapitalize more than half of the DODEA schools. Funding in fiscal year 2017 includes $246 million to address four schools in poor condition at Dover, Delaware; Kaiserslautern, Germany; Kadena AB, Japan; and RAF Croughton, United Kingdom.

Third, the fiscal year 2017 budget request includes $304 million for medical facility recapitalization. This includes $50 million for the first increment of a $510 million project for the Walter Reed Medical Center Addition/Alteration; $58.1 million for increment six (of a $982 million seven increment project) for the Medical Center Replacement at Rhine Ordnance Barracks in Germany; and $195.9 million for five other smaller medical/dental facilities. All the projects are crucial for our continued delivery of quality health care that our servicemembers and their families deserve whether stationed stateside or during overseas deployments.

Overseas Contingency Operations

The fiscal year 2017 Overseas Contingency Operations budget request includes $47.9 million for projects supporting the mission in East Africa (Djibouti). The request also includes $113.6 million in European Reassurance Initiative military construction funding for military construction activities for the Active components of all Military Services, and Defense-Wide Activities supporting military operations in Europe in direct support of NATO, Operation Freedom's Sentinel, and Operation Inherent Resolve. Funds provided would bolster security of U.S. NATO Allies and partner states in Europe and deter aggressive actors in the region by enhancing prepositioning and weapons storage capabilities, improving airfield and support infrastructure, providing 5th generation warfighting capability, and building partnership capacity.

Family and Unaccompanied Housing

A fundamental priority of the Department is to support military personnel and their families to improve their quality of life by ensuring access to suitable, affordable housing. Service members are engaged in the front lines of protecting our national security and they deserve the best possible living and working conditions. Sustaining the quality of life of our people is crucial to recruitment, retention, readiness and morale.

Our fiscal year 2017 budget request includes $1.3 billion to fund construction, operation, and maintenance of government-owned and leased family housing worldwide as well as to provide housing referral services to assist military members in renting or buying private sector housing, and oversight of privatized family housing (see Table 2 below). Included in this request is $356 million for construction and improvements; $232 million for operations (including housing referral services); $229 million for maintenance; $154 million for utilities; and $349 million for leasing and privatized housing oversight.

This funding request supports over 38,000 government-owned family housing units, almost all of which are on enduring bases in foreign countries now that the Department has privatized the vast majority of our family housing in the United States (over 206,000 units). The Department is also leasing more than 9,000 family housing units where government-owned or privatized housing is not feasible. Our request also includes $3.3 million to support administration of the Military Housing Privatization Initiative (MHPI) Program as prescribed by the Federal Credit Reform Act of 1990, to ensure the project owners continue to fund future capital repairs and replacements as necessary to provide quality housing for military families and to ensure that these projects remain viable for their 40–50 year lifespan.

In fiscal year 2015, the Department notified Congress of DOD's intent to transfer $96 million of Navy family housing construction funds into the Department's Family Housing Improvement Fund (FHIF) to execute Hawaii Phase 6 to support Marine Corps housing requirements in Hawaii. Execution of Hawaii Phase 6 brings the Department's total privatized family housing inventory to nearly 202,000 homes.

Table 2.—Family Housing Budget Request, Fiscal year 2016 Versus Fiscal Year 2017

Account category	FY 2016 request ($ millions)	FY 2017 request ($ millions)	Change from FY 2016	
			Funding ($ millions)	Percent
Family Housing Construction/Improvements	277	356	79	29%
Family Housing Operations & Maintenance	1,136	961	(175)	(15%)
Family Housing Improvement Fund*	0	3	3	100%
TOTAL	1,413	1,320	93	(7%)

*We made no fiscal year 2016 request for funds to oversee privatized housing because we had sufficient fiscal year 2015 cost savings to cover our fiscal year 2016 expenses.

The Department also continues to encourage the modernization of Unaccompanied Personnel Housing (UPH) to improve privacy and provide greater amenities. In recent years, we have heavily invested in UPH to support initiatives such as BRAC, global restationing, force structure modernization, and the Navy's Homeport Ashore initiative. However, this constrained budget request only includes five UPH projects totaling $161 million, all of which are for transient personnel or trainees such as a $67 million Recruit Dormitory at Joint Base San Antonio, Texas.

Facilities Sustainment and Recapitalization

In addition to new construction, the Department invests significant funds in maintenance and repair of our existing facilities. Sustainment represents the Department's single most important investment in the condition of its facilities. It includes regularly scheduled maintenance and repair or replacement of facility components—the periodic, predictable investments that should be made across the service life of a facility to slow its deterioration, optimize the Department's investment, and save resources over the long term. Proper sustainment slows deterioration, maintains safety, preserves performance over the life of a facility, and helps improve the productivity and quality of life of our personnel.

Table 3.—Sustainment and Recapitalization Budget Request, Fiscal Year 2016 Versus Fiscal Year 2017

Account category	FY 2016 request ($ millions)	FY 2017 request ($ millions)	Change from FY 2016	
			Funding ($ millions)	Percent
Sustainment (O&M)	8,022	7,450	(572)	(7%)
Recapitalization (O&M)	2,563	2,088	(475)	(19%)
TOTAL	10,585	9,538	(1,047)	(10%)

The accounts that fund these activities have taken significant cuts in recent years. For fiscal year 2017, the Department's budget request includes $7.4 billion for sustainment and $2.1 billion for recapitalization (see Table 3 above) in Operations & Maintenance funding only. The combined level of sustainment and recapitalization funding ($9.5 billion) is a 10 percent decrease from the fiscal year 2016 President's Budget (PB) request ($10.6 billion), and reflects an acceptance of significant risk in DOD facilities. In fact, the request supports average DOD-wide sustainment funding level that equates to 74 percent of the FSM requirement as compared to the Department's goal to fund sustainment at 90 percent of modeled requirements.

Recent and ongoing budget constraints have limited investment in facilities sustainment and recapitalization to the point that 11.7 percent of the Department's facility inventory is in "poor" condition (Facility Condition Index (FCI) between 60 and 79 percent) and another 14.8 percent is in "failing" condition (FCI below 60 percent) based on recent facility condition assessment data. Compared to last year (see Table 4), the Department is seeing more poor facilities moving into failing conditions. Until the out-year sequestration challenges are overcome, the Department will continue to take risk in funding to sustain and recapitalize existing facilities. This will ultimately result in DOD facing larger bills in the out-years to restore or replace facilities that deteriorate prematurely.

Table 4.—Comparison of Fiscal Year 2014 and Fiscal Year 2015 Facility Condition Indices

End of FY 2014 FCI (%)	End of FY 2015 FCI (%)			
	Poor (60–79 %)	Failing (<60%)	Poor (60–79 %)	Failing (<60%)
Army	31.3	10.2	12.8	26.1
Navy	17.4	6.4	15.8	6.4
Air Force	2.6	4.1	5.7	3.9
Washington Headquarters Service	2.2	4.7	2.1	5.8
TOTAL	19.7	7.4	11.7	14.8

FISCAL YEAR 2017 BUDGET REQUEST—ENVIRONMENTAL PROGRAMS

The Department has long made it a priority to protect the environment on our installations, not only to preserve irreplaceable resources for future generations, but to ensure that we have the land, water and airspace we need to sustain military readiness. To achieve this objective, the Department has made a commitment to continuous improvement, pursuit of greater efficiency and adoption of new technology. In the President's Fiscal Year 2017 Budget, we are requesting $3.4 billion, a slight decrease from fiscal year 2016, to continue the legacy of excellence in our environmental programs.

The table below outlines the entirety of the DOD's environmental program, but I would like to highlight a few key elements where we are demonstrating significant progress—specifically, our environmental restoration program, our efforts to leverage technology to reduce the cost of cleanup, and the Readiness and Environmental Protection Integration (REPI) program.

Table 5.—Environmental Program Budget Request, Fiscal Year 2017 Versus Fiscal Year 2016

Program	FY 2016 Request ($millions)	FY 2017 Request ($millions)	Change from FY 2016	
			Funding ($millions)	Percent
Environmental Restoration	1,107	1,030	(77)	(7%)
Environmental Compliance	1,389	1,493	103	7%
Environmental Conservation	389	420	31	8%
Pollution Prevention	101	84	(17)	(17%)
Environmental Technology	200	186	(14)	(7%)
BRAC Environmental	217	181	(36)	(17%)
TOTAL	3,405	3,395	(10)	(0.3%)

Environmental Restoration

We are requesting $1.2 billion to continue cleanup efforts at remaining Installation Restoration Program (IRP—focused on cleanup of hazardous substances, pollutants, and contaminants) and Military Munitions Response Program (MMRP—focused on the removal of unexploded ordnance and discarded munitions) sites. This includes $1.0 billion for "Environmental Restoration," which encompasses active installations and Formerly Used Defense Sites (FUDS) locations and $181 million for "BRAC Environmental." The amount of BRAC Environmental funds requested will be augmented by $108 million of land sale revenue and prior year, unobligated funds, bringing the total amount of BRAC Environmental funding planned for obligation in fiscal year 2017 to $289 million. These investments help to ensure DOD continues to make property at BRAC locations safe and environmentally suitable for transfer. We remain engaged with the Military Departments to ensure they are executing plans to spend remaining unobligated balances in the BRAC account.

Table 6.—Progress Toward Cleanup Goals

Goal: Achieve Response Complete at 90% and 95% of Active and BRAC IRP and MMRP sites, and FUDS IRP sites, by FY 2018 and FY 2021, respectively

	Status as of the end of FY 2015	Projected Status at the end of FY 2018	Projected Status at the end of FY 2021
Army	90%	94%	97%
Navy	80%	86%	92%
Air Force	80%	89%	94%
DLA	86%	97%	97%
FUDS	80%	89%	94%
TOTAL	84%	91%	95%

We are cleaning up sites on our active installations in parallel with those on bases closed in previous BRAC rounds—cleanup is not something that DOD pursues only when a base is closed. In fact, the significant progress we have made over the last 20 years cleaning up contaminated sites on active DOD installations is expected to reduce the residual environmental liability in the disposition of our property made excess through the BRAC process or other efforts.

By the end of 2015, the Department, in cooperation with state agencies and the Environmental Protection Agency, completed cleanup activities at 84 percent of Active and BRAC IRP and MMRP sites, and FUDS IRP sites, and is now monitoring the results. During fiscal year 2015 alone, the Department completed cleanup at over 870 sites. Of the roughly 39,500 restoration sites, almost 31,500 are now in monitoring status or cleanup completed. We are currently on track to meet our program goals—anticipating complete cleanup at 95 percent of Active and BRAC IRP and MMRP sites, and FUDS IRP sites, by the end of 2021.

Our focus remains on continuous improvement in the restoration program: minimizing overhead; adopting new technologies to reduce cost and accelerate cleanup; refining and standardizing our cost estimating; and improving our relationships with State regulators through increased dialogue. All of these initiatives help ensure that we make the best use of our available resources to complete cleanup.

Environmental Technology

A key part of DOD's approach to meeting its environmental obligations and improving its performance is its pursuit of advances in science and technology. The Department has a long record of success when it comes to developing innovative en-

vironmental technologies and getting them transferred out of the laboratory and into actual use on our remediation sites, installations, ranges, depots and other industrial facilities. These same technologies are also now widely used at non-Defense sites helping the nation as a whole.

While the fiscal year 2017 budget request for Environmental Technology overall is $191 million, our core efforts are conducted and coordinated through two key programs—the Strategic Environmental Research and Development Program (SERDP—focused on basic research) and the Environmental Security Technology Certification Program (ESTCP—which validates more mature technologies to transition them to widespread use). The fiscal year 2017 budget request includes $65 million for SERDP and $32 million for ESTCP for environmental technology demonstrations, with an additional $20 million requested specifically for energy technology demonstrations.

These programs have already achieved demonstrable results and have the potential to reduce the environmental liability and costs of the Department—developing new ways of treating groundwater contamination, reducing the life-cycle costs of multiple weapons systems, and improving natural resource management.

As an example, this past year SERDP-sponsored project to conduct basic research that is will develop an environmentally benign Chemical Agent Resistant Coating (CARC), which is critical technology for the protection of military assets. Current CARC coatings contribute approximately 2.3 million pounds of volatile organize compounds (VOCs) and hazardous air pollutants (HAPs) to the environment each year. The new novel powder CARC is absent of solvent, emits nearly zero VOCs, can be recycled, and is compatible with existing CARC systems. In addition, testing to date proves that the exterior durability of this coating is superior to any liquid CARC system, supporting DOD's initiative for corrosion prevention and mitigation. Coating products are currently in transition to Original Equipment Manufacturers, Depots, and the Defense Logistics Agency (DLA).

Looking ahead, our environmental technology investments are focused on the Department's evolving requirements. In the area of Environmental Restoration, we are launching a new three-year initiative to support sustainable range management by researching the environmental impacts of new munitions compounds and we will continue our investments in technologies to address the challenges of contaminated groundwater sites where no good technical solutions are currently available. We are working to understand the behavior of contaminants in fractured bedrock and large dilute plumes, which represent a large fraction of these sites, and to develop treatment and management strategies. We will continue our efforts to develop the science and tools needed to meet the Department's obligations to assess and adapt to climate change. Finally, to transition the important work of improving the sustainability of our industrial operations and reducing life-cycle costs by eliminating toxic and hazardous materials from our production and maintenance processes we are initiating a program to demonstrate that our most hazardous chemicals can be eliminated from a maintenance production line.

Environmental Conservation and Compatible Development

To maintain access to the land, water and airspace needed to support our mission needs, the Department continues to successfully manage the natural resources entrusted to us—including protecting the many threatened and endangered species found on our lands. DOD manages approximately 25 million acres containing many high-quality and unique habitats that provide food and shelter for nearly 520 species-at-risk and over 400 that are federally listed as threatened or endangered species. That is 9 times more species per acre than the Bureau of Land Management, 6 times more per acre than the United States Fish and Wildlife Service (USFWS), 4.5 times more per acre than the Forest Service, and 3.5 times more per acre than the National Park Service. A surprising number of rare species are found only on military lands—including more than 15 listed species and at least 75 species-at-risk.

The fiscal year 2017 budget request for Conservation is $420 million. The Department invests these funds to manage its imperiled species as well as all of its natural resources in an effort to sustain the high quality lands our service personnel need for testing, training and operational activities, and to maximize the flexibility our servicemen and women need to effectively use those lands. Species endangerment and habitat degradation can and does have direct mission-restriction impacts. That is one reason we work hard to prevent species from becoming listed and, if they do become listed, to manage these species and their habitat in ways that sustain the resource and enable our ability to test and train. All of our plans now adequately address these species, and we have successfully and consistently avoided critical habitat designations because our plans adequately address management concerns for species that exist on our lands. Getting ahead of any future listings has been

a prime, natural resource objective for the last several years and will remain so in the future.

Readiness and Environmental Protection Integration (REPI) Program

To help ensure DOD sustains its national defense mission and protects species under duress, the Department has developed a strategy that supports conservation beyond installation boundaries. Under this strategy DOD engages with other governmental and non-governmental partners, as well as private landowners, to develop initiatives and agreements for protecting species for the purposes of precluding or mitigating regulatory restrictions on training, testing, and operations on DOD lands. Expanding the scale and options for protecting species on non-DOD land benefits conservation objectives while helping sustain access to, and operational use, of DOD live training and test domains.

This strategic focus is a key element of the Readiness and Environmental Protection Integration (REPI) Program. Under REPI, the Department partners with conservation organizations and state and local governments to preserve buffer land and sensitive habitat near installations and ranges. Preserving these areas allows the Department to avoid more costly alternatives such as workarounds, restricted or unrealistic training approaches, or investments to replace existing test and training capability. Simultaneously, these efforts ease the on-installation species management burden and reduce the possibility of restricted activities, ultimately providing more flexibility for commanders to execute their missions.

Included within the $420 million for Conservation, $60 million is directed to the REPI Program. The REPI Program is a cost-effective tool to protect the nation's existing training, testing, and operational capabilities at a time of decreasing resources. In the last 13 years, REPI partnerships have protected more than 437,000 acres of land around 86 installations in 29 states. In addition to the tangible benefits to training, testing, and operations, these efforts have resulted in significant contributions to biodiversity and recovery actions supporting threatened, endangered and candidate species.

The REPI Program supports the warfighter and protects the taxpayer because it multiplies the Department's investments through unique cost-sharing agreements. Even in these difficult economic times, REPI is able to directly leverage the Department's investments at least one-to-one with those of our partners, effectively securing critical buffers around our installations for half-price.

In addition, DOD, along with the Departments of the Interior and Agriculture, continues to advance the Sentinel Landscapes Partnership to protect large landscapes where conservation, working lands, and national defense interests converge—places defined as Sentinel Landscapes. Established in 2013, the Sentinel Landscapes Partnership further strengthens interagency coordination and provides taxpayers with the greatest leverage of their funds by aligning federal programs to advance the mutually-beneficial goals of each agency.

Thus far, three Sentinel Landscapes have been identified around Joint Base Lewis-McChord, Washington; Fort Huachuca, Arizona; and Naval Air Station (NAS) Patuxent River and the Atlantic Test Ranges, Maryland. The pilot Sentinel Landscape project at JBLM influenced the USFWS decision to avoid listing a butterfly species in Washington, Oregon, and California. The USFWS cited the "high level of protection against further losses of habitat or populations" from investments made by Joint Base Lewis-McChord's REPI partnership, actions that allow significant maneuver areas to remain available and unconstrained for active and intense military use at JBLM. At Fort Huachuca, NAS Patuxent River and the Atlantic Test Ranges, DOD is working with USFWS, the Natural Resources Conservation Service, the U.S. Forest Service, and a variety of state and private conservation organizations to protect important swaths of special use airspace used for aircraft testing and training, while also benefiting ecologically sensitive watersheds and the installations, wildlife, and working lands dependent on those resources.

FISCAL YEAR 2017 BUDGET REQUEST—ENERGY PROGRAMS

Unlike the Department's Military Construction and Environmental Remediation programs, where the budget request includes specific line items, our energy programs are subsumed into other accounts. The following sections describe the Energy portion of the budget request. Further discussion of energy follows in the highlighted issues section.

Operational Energy

In fiscal year 2017, the Department's budget request includes an estimated $9.8 billion for 93.3 million barrels of fuel. In order to increase warfighting capability and reduce operational risk, the Department's fiscal year 2017 budget request also

includes $2.5 billion for adaptations and improvements in our use of operational energy. Operational energy is the energy used to power aircraft, ships, combat vehicles, and mobile power generation at contingency bases. While there is no explicit budget request for Operational Energy, these investments across multiple accounts and appropriations are intended specifically to improve military capability.

Within this overall request, the Department is requesting $37.3 million in RDT&E funding to support the Operational Energy Capabilities Improvement Fund (OECIF). OECIF provides funding to DOD research programs that improve operational energy performance organized around a specific annual theme or focus area, as well as sustain funding to those programs already underway. The fiscal year 2017 President's Budget will provide funding for new programs, as well as support those programs established in fiscal year 2014–fiscal year 2016.

Finally, the Department is requesting $5.4 million in fiscal year 2017 to fund the operations of OASD(EI&E) and oversee operational energy activities. Each year, EI&E certifies that the President's Budget is adequate for carrying out the Department's *Operational Energy Strategy.* The full certification report, which will be provided to Congress in the near future, will provide a more comprehensive assessment of the alignment of operational energy initiatives with the goals of the recently released 2016 *Operational Energy Strategy.*

2016 Operational Energy Strategy

Reflecting lessons learned, strategic guidance, and the evolving operational environment, the 2016 *Operational Energy Strategy* is designed to improve our ability to deliver the operational energy needed to deploy and sustain forces in an operational environment characterized by peer competitors, asymmetric insurgents, and unforgiving geography. The strategy identifies the following three objectives:

- *Increase Future Warfighting Capability.* Foremost, the strategy focuses on increasing warfighter capability through energy-informed force development. In addition to energy Key Performance Perimeters (eKPP) informed by energy supportability analyses that improve the combat effectiveness and supportability of major acquisition programs, the Department will continue to invest in energy innovation that improves the long-term capability of the Department, such as increasing the unrefueled range or endurance of platforms. With this knowledge of inherent energy constraints and risks, the Military Departments will be better able to make energy-informed decisions related to force development and future capabilities.
- *Identify and Reduce Logistics and Operational Risks.* To effectively reduce logistics risks, the Department will address energy risks in near-term operation plans as well as more exploratory, longer-term concepts of operation. Initiatives that fall into this category seek to mitigate warfighting gaps found in Integrated Priority Lists, OPLANs, and wargames. The Department's focus on risk will ensure future forces are better aligned to mitigate potential threats to operations.
- *Enhance Mission Effectiveness of the Current Force.* Finally, the strategy will improve the effectiveness of U.S. forces operating around the globe today. To do so, the Department will emphasize improved energy use in operations and training, and enhanced education of operators, logisticians, and system developers. These initiatives may include material and non-material enhancements to day to day operations, as well as adaptations in training, exercises, and professional military education.

In coordination with the Combatant Commands, Military Departments, Joint Staff, and Defense Agencies, my office is overseeing the execution of fifteen targets arrayed across the three objectives. For instance, we are supporting Joint Staff oversight of the energy KPP, facilitating operational energy advisors at the Combatant Commands, and assessing the role of operational energy in war games and operation plan reviews. In addition to the Defense Operational Energy Board, we will use existing requirements, acquisition, programming, and budgeting processes to review Department progress against these targets.

Installation Energy

As with Operational Energy, there is no explicit request in the overall budget for Facilities Energy—utilities expenditures are included in the Base Operations O&M request. Facilities Energy remains our single largest base operating cost and in fiscal year 2015, we spent $3.9 billion to heat, cool, and provide electricity to our buildings. To reduce this cost the Department is pursuing energy efficiencies through building improvements, new construction, and third-party investments.

The Department's fiscal year 2017 budget request includes approximately $618 million for investments in conservation and energy efficiency, most of which will be directed to existing buildings. The majority ($468 million) is in the Military Components' operations and maintenance accounts, to be used for sustainment and recapitalization projects. Such projects typically involve retrofits to incorporate improved lighting, high-efficiency HVAC systems, double-pane windows, energy management control systems, and new roofs. The remainder ($150 million) is for the Energy Conservation Investment Program (ECIP), a Military Construction account used to implement energy efficiency, water conservation, and renewable energy projects. Each individual ECIP project has a positive payback (i.e. Savings to Investment Ratio (SIR) > 1.0) and the overall program has a combined SIR greater than 2.0. This means for every dollar we invest in ECIP, we generate more than two dollars in savings.

The Military Component investments include activities that would be considered regular maintenance and budgeted within the O&M accounts for Facilities Sustainment, Restoration, and Maintenance activities. The risk that has been accepted in those accounts will not only result in fewer energy projects, but failing to perform proper maintenance on our buildings will without question have a negative impact on our energy usage. In plain terms, upgrades to air conditioning systems will not reduce energy usage as projected if the roof is leaking or the windows are broken.

In addition to retrofitting existing buildings, we continue to drive efficiency in our new construction. Our new buildings must be constructed using the high-performance sustainable buildings standards issued by my office 2 years ago which include greater energy efficiency requirements.

Additionally, the Department is taking advantage of third-party financing through Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs), to implement energy efficiency improvements in our existing buildings. Under these contracts private energy firms or utility companies make energy upgrades to our buildings and are paid back over time using utility bill savings.

Facilities Energy Management

With respect to facilities energy management the Department has made great progress towards improving the energy efficiency of its installations. Since fiscal year 2009, the Department reduced the energy consumed on our military bases by 10 percent, avoiding over $1.2 billion in operating costs.

In addition to using appropriated funding for energy conservation and efficiency initiatives, the Department is continuing to take advantage of third-party financing tools through energy performance based contracts (ESPCs and UESCs) to implement energy efficiency improvements in our existing buildings. While such performance-based contracts have long been part of the Department's energy strategy, the Services have significantly increased the use of ESPCs and UESCs in response to the President's Performance Contracting Challenge (PPCC) originally issued in December 2011 and extended in May 2014. The PPCC challenged federal agencies to award $4 billion in energy performance based contacts by the end December 2016. The DOD's commitment to the challenge is just over $2 billion in contracts. To date the Department has awarded $1.3 billion in ESPCs and UESCs.

Regarding renewable energy, the Department has a goal to deploy 3 gigawatts of renewable energy by fiscal year 2025. Most renewable energy projects we pursue are financed by private developers. DOD's authorities for renewable energy—particularly the ability to sign power purchase agreements of up to 30 years—provide incentives for private firms to fund the projects themselves, and can also provide a strong business case that they are able to offer DOD lower energy rates than are being paid currently. The DOD does not make any capital investment in these renewable energy projects. When feasible, renewable energy projects are being built with micro-grid-ready applications that can enable the provision of continuous power in the event of a disruption.

As of the end of fiscal year 2015 the Department has 702 megawatts in renewable energy projects in operation. The Services also have more than 550 megawatts of projects under construction including a 15 MW Solar PV/ 50 MW wind "hybrid" project at Ft Hood, TX and an off-site 210 MW solar PV facility that will supply power to 14 Department of Navy installations in California. Further, there is another 1.3 gigawatts of renewable energy projects in various stages of development; putting the Department well on track towards meeting its 3 gigawatt goal.

HIGHLIGHTED ISSUES

Merger of the Energy, Installations, and Environment Organizations

As you know, the fiscal year 2015 National Defense Authorization Act directed the merger of the Assistant Secretary of Defense for Operational Energy Plans and Programs and the Deputy Under Secretary of Defense for Installations and Environment to create the Assistant Secretary of Defense for Energy, Installations and Environment. The ASD (EI&E) is now the principle advisor to the Secretary of Defense for Acquisition, Technology, and Logistics on matters relating to energy, installations, and environment and the principal advisor to the Secretary of Defense and the Deputy Secretary of Defense regarding operational energy plans and programs.

The Department is currently developing the required report on the status of the merger, and will provide that to the Congress later this year. I can tell you that through the merger operational energy functions have benefited from additional resources and collaboration with complementary functions related to installation energy, facilities investment and management, and basing.

Base Realignment and Closure

Given the need to find efficiencies and reexamine how our infrastructure is configured, the Administration is requesting the authority from Congress to conduct a 2019 BRAC round. As indicated in testimony last year, the Department has excess capacity. The Army and Air Force have analyzed their infrastructure and have found that they have 18 percent and 30 percent excess capacity, respectively. We are currently conducting a DOD wide parametric analysis as directed by the fiscal year 2016 National Defense Authorization Act, which will likely indicate excess of around 20 percent. This level of excess is not surprising given the fact that in 2004 we found that the Department had 24 percent excess and BRAC 2005 reduced infrastructure by 3.4 percent (as measured by plant replacement value).

As we have said, a new BRAC round will be different than BRAC 2005. The new round will be efficiency focused. It will save about $2 billion a year after implementation; with costs and savings during the six year implementation being a wash at approximately $7 billion. Our projection is based on the efficiency rounds of the 1990s.

In addition to being a proven process that yields savings, BRAC has several advantages that we have outlined before in our testimony. I want to highlight a few of these:

- BRAC is comprehensive and thorough—all installations are analyzed using certified data aligned against the strategic imperatives detailed in the 20-year force structure plan;
- The BRAC process is auditable and logical which enables the Commission to conduct an independent review informed by its own analysis and testimony from affected communities and elected officials;
- The Commission has the last say on the Department's recommendations—being fully empowered to alter, reject, or add recommendation;
- The BRAC process has an "All or None" construct which prevents the President and Congress from picking and choosing among the Commission's recommendations; thereby insulating BRAC from politics;
- The BRAC process imposes a legal obligation on the Department to close and realign installations as recommended by the Commission by a date certain that facilitates economic reuse planning by impacted communities and grants the Department the authorities needed to satisfy that legal obligation.

In recognition of your concerns about cost and the amount of time the BRAC Commission has to review our recommendations, the Department's request for BRAC authorization includes four key changes from prior year submissions as well as a handful of administrative and timeline changes. Each of the changes are narrowly tailored to address congressional cost concerns while not altering the fundamental principles of the BRAC process: treating all bases equally; all or none review by both the President and Congress; review by an independent Commission; making military value the priority consideration; and a clear legal obligation to implement all of the recommendations in a time certain together with all the authorities needed to accomplish implementation.

To ensure the next BRAC round is focused on saving money and maximizing efficiency, our legislation adds a requirement for the Secretary of Defense to certify that the BRAC round will have the primary objective of eliminating excess infrastructure to maximize efficiency and reduce cost. Like the existing requirement to certify the need for a BRAC round, this certification occurs at the outset of the BRAC process and is a precondition to moving forward with development of rec-

ommendations. Additionally, subject to the requirement to give priority consideration to the military value selection criteria, the legislation now requires the Secretary to emphasize those recommendations that yield net savings within 5 years of completing the recommendation and limits the Secretary's ability to make recommendations that do not yield savings within 20 years. In order to make a recommendation that does not yield savings within 20 years, the Secretary must expressly determine that the military value of such recommendation supports or enhances a critical national security interest of the United States.

Finally, the legislation also now specifically delineates those costs that must be considered when determining the costs associated with a recommendation. As revised, the legislation specifies that the Department must consider costs associated with military construction, information technology, termination of public-private contracts, guarantees, the costs of any other activity of the Department of Defense or any other Federal agency that may be required to assume responsibility for activities at the military installations, and such other factors as the Secretary determines as contributing to the cost of a closure or realignment. Previous versions of the legislation had only specifically mentioned the costs of any other activity of the Department of Defense or any other Federal agency that may be required to assume responsibility for activities at the military installations

Our proposal extends the Commission review period to run from April 15 to October 1 which adds two months to Commission review and requires that Commissioners be named by February 1st which enables the Commission to be up and running for ten weeks before our recommendations come to them. Our revision also requires the Chair of the Commission to certify that the Commission and its staff have the capacity to review the Department's recommendations.

Heretofore, we've addressed every concern raised by Congress. We conducted the European Infrastructure Consolidation to address concerns that we need to look at overseas installations first; we programmed the costs and pledged the next round will reduce excess instead of the 2005 round's more costly "transformation" focus in response to concerns that we could not afford BRAC; and we have demonstrated that excess capacity exists—Army and Air Force testified to 21 and 30 percent. We've updated our DOD-wide (parametric) analysis and will provide it to Congress soon; it indicates over 20 percent excess.

We hope the Department's efforts will result in a real dialog with members of Congress regarding the need for and value of the BRAC process, ultimately resulting in authority for a 2019 BRAC round.

European Infrastructure Consolidation

In response to our recent requests for BRAC authority, Congress made it clear that it wanted DOD to look at reducing our overseas infrastructure first—particularly in Europe. We did so by conducting the European Infrastructure Consolidation (EIC) analysis—the first holistic and joint review of our legacy infrastructure in Europe.

To analyze our European infrastructure we used a process very similar to the proven U.S. BRAC process. We looked at capacity, requirements (including surge), military value, cost, and the diplomatic dynamics involved with each action. As we consolidate our footprint, the infrastructure remaining in place will continue to support our operational requirements and strategic commitments, but we will not need as many support personnel (military, civilian, and host nation employees) to do so.

The 26 approved EIC actions will allow us to create long-term savings by eliminating excess infrastructure without reducing our operational capabilities. In other words, operationally we will continue to do everything we currently do but at a lower cost. After a one-time investment of approximately $800 million in Military Construction to implement two major base closures, eight minor site closures, and 16 realignment actions, the Department will realize approximately $500 million in annual recurring savings.

These actions will be executed over the next several years, but that does not mean that everything will remain static in Europe while these changes occur. There were consolidations made before EIC and there will undoubtedly be future basing actions—especially given the evolving security environment. However, our holistic review and the resultant actions allow us to redirect resources supporting unneeded infrastructure and apply them to higher priorities, thus strengthening our posture in Europe.

Although we continually seek efficiencies as we manage installations worldwide, the Department does not conduct this degree of comprehensive analyses of its infrastructure on a regular basis. That's one of the reasons we have requested BRAC authority from Congress to do a review of our U.S. installations. In this fiscal environment it would be irresponsible of us not to look for such savings.

Rebasing of Marines from Okinawa to Guam

The movement of thousands of marines from Okinawa (and elsewhere) to Guam is one of the most significant re-basing action in recent years. We appreciate Congress' support allowing us to move forward on this essential component of our rebalance to the Asia-Pacific region, resulting in a more geographically dispersed, operationally resilient, and politically sustainable posture in the area. As a U.S. territory, Guam offers strategic advantages and operational capabilities that are unique in the region. Presence in Guam is a force multiplier that contributes to a force posture that reassures allies and partners and deters aggression.

Now that the very complex National Environmental Policy Act (NEPA) process (nearly five years of study) is complete, there is a clear path for construction to proceed in earnest. Utilities and site improvements (~$300 million funded by the GoJ) for the main cantonment area at Finegayan, and a live-fire training range ($125 million) at Andersen's Northwest Field will be the first projects under the new Record of Decision (ROD). Construction for the Marine Aviation Combat Element (ACE) at the North Ramp of Andersen proceeded earlier because it was covered under the original 2010 ROD; it remains on track.

We understand Congress' concerns regarding both the cost and feasibility of the relocation and we are firmly committed to the principles of operational effectiveness and fiscal responsibility. We remain confident in the estimate of $8.7 billion for the program, which includes $3.1 billion provided by the Government of Japan (GoJ) ($1.152 billion transferred to date). The Department is evaluating this program in advance of each year's budget submission to pursue efficiencies that have the potential to reduce overall cost. For example, the Department's decision to relocate housing to Andersen Air Force Base reduced the requirement for a water works project (at the main cantonment area) saving the Department approximately $50 million. Additionally, we continue to provide the necessary oversight, conducting quarterly Deputy Secretary led Guam Oversight Council meetings to address issues related to the program's implementation.

The Marines, in conjunction with the Naval Facilities Engineering Command (NAVFAC), have an established program management organization for construction execution and oversight. NAVFAC is standing up an Officer in Charge of Construction office and anticipates it will be in place by the first quarter of 2017. The marines continue with planning to meet operational requirements on the ground. This is the largest infrastructure program (~$9 billion) that has been executed in many years, so it is prudent to have the necessary management structure in place to ensure success.

The Economic Adjustment Committee Implementation Plan (EIP) (submitted to Congress in October 2015) was the last Congressional requirement restricting project execution on Guam. The Plan outlines the five "outside the fence" projects (listed in the table below) associated with the impacts of the build-up on Guam's civilian infrastructure. Last year's fiscal year 2016 NDAA provides authorization for moving forward with the water/wastewater projects—but not for the cultural repository and the public health lab projects. Our fiscal year 2017 President's Budget requests authority for these two projects and the balance of funding ($87 million).

Table 7—EAC Projects Supporting DON Record of Decision

Project title	Project total ($millions)	Previous FY(s) Appropriated ($millions)	FY 2017 request ($millions)
Upgrade Wastewater Treatment Plan	139	71	68
Refurbishment sewer line Andersen AF	31	31	0
Repair/expansion Aquifer monitoring system	4	4	0
Public Health Laboratory	32	13	19
Cultural Repository	12	12	0
TOTAL	218	131	87

The cumulative impact of this stationing was carefully evaluated within the environmental analysis process and we determined that water/wastewater, public health, and our obligation to care for artifacts uncovered in our construction need to be addressed. The associated projects total $218 million, which is a relatively small, but absolutely necessary, portion of this relocation.

Failure to provide authorization for these projects increases the risk of litigation and project delay and will affect DOD's credibility with the Guam's populace. Our

inability to meet commitments to the Government of Guam will also adversely affect our credibility with the Government and people of the Commonwealth of Northern Mariana Islands (CNMI) since they have similar concerns, as discussed below.

Commonwealth of Northern Mariana Islands (CNMI) Initiatives

The Department continues to pursue two key military initiatives in CNMI—the CNMI Joint Military Training (CJMT) Complex (a U.S. Pacific Command (PACOM) initiative (led by USMC) to reduce joint training deficiencies in the Western Pacific); and an Air Force Divert and Exercise Field on Tinian.

PACOM requires a Joint Military Training Complex in-theater to meet Department of Defense training requirements in the theater. The Complex will make a key contribution to the readiness of marines relocating to Guam and provide bilateral and multilateral training opportunities with foreign allies and partners. The Department sought to design the CJMT complex on Tinian and Pagan in a manner that minimizes the impacts on the local communities and provides direct economic and other benefits while meeting PACOM and its Service Components' training requirements.

The training complex includes a series of live-fire Range Training Areas, training courses, maneuver areas, and associated support facilities located in close proximity to each other. The total cost of the complex is ~$900 million with GoJ contributing $300 million. In April 2015, the Department of Navy (DON) released the draft Environmental Impact Statement (DEIS) for the proposed action with an original public comment period of 60 days (extended to 180 days to accommodate requests by the CNMI Governor to give him more time in light of internet problems and damage from Typhoon Soudelor). In response to the over 28,000 comments received in October 2015 the DON announced its intent to prepare a Revised DEIS to more fully address potential impacts to water, coral, and other natural resources. The DON now estimates the ROD will be issued in the summer of 2018. This timeline still supports force flow to Guam in 2022.

The Air Force needs to establish a divert capability for up to 12 tankers if access to Andersen Air Force Base is unavailable. The Air Force proposes to construct facilities and infrastructure to support a combination of cargo, tanker, and similar aircraft and associated personnel not only for divert operations, but also to support periodic exercises and disaster relief activities. Efforts to establish this capability are on track for a Record of Decision in mid-April 2016. The Air Force is now pursuing a Tinian-only solution consistent with CNMI's desires.

Building and Maintaining Resilience in the Face of a Changing Climate

Resilience to climate change continues to be a priority for the Department. Both the 2010 and 2014 Quadrennial Defense Reviews (QDRs) discussed the impacts associated with a changing climate that present a threat to DOD's national security mission. We recognize these impacts and their potential threats represent one more risk that we must consider as we make decisions about our installations, infrastructure, weapons systems and, most of all, our people. We have always dealt with the risks associated with extreme weather events and its impacts on our operations and missions. Our challenge today is how to plan for changes in the environment we will be operating from and in.

Even without knowing precisely how or when the climate will change, we know we must build resilience into our policies, programs, and operations in a thoughtful and cost effective way. In January 2016, we issued a DOD Directive on climate change adaptation and resilience that identifies roles and responsibilities across the Department for implementing these strategies over the next ten years.

Specifically, I am focusing on our installations and infrastructure. Sea level is rising and many coastal areas are subsiding or sinking. This impacts the operation and maintenance of our existing installations and infrastructure. As Arctic Sea ice melts and breaks apart, our early warning radar sites are being eroded away at a much greater rate than before. Drought and flooding, which ironically go together, threaten water resources for us and our surrounding communities and exacerbate wildfire issues across the country.

The Military Services have conducted a screening level assessment of all DOD sites world-wide to identify where we are potentially vulnerable to extreme weather events and tidal anomalies today. The information gleaned from this initial look will help to focus reviews of installation footprints, and shape planning for current and future infrastructure.

Given the projected increases in major storms, DOD continues its progress to ensure energy resilience for its military installations. We completed our power resilience review, and are now updating Department-level instructions to include energy resilience requirements. These requirements will ensure that the Department has

the ability to prepare for and recover from energy disruptions that impact mission assurance on its military installations.

Our goal is to increase the Department's resilience to the impacts of climate change. To achieve this goal, we are integrating consideration and reduction of climate risks into our already established mission planning and execution.

Financial Improvement & Audit Readiness

In order to effectively manage its financial resources, the Department remains focused on improving financial record keeping and conducting an independent audit of DOD's financial books beginning in fiscal year 2017. This includes not only an audit of the Department's Statement of Budgetary Resources, but also validating the existence and completeness, rights and obligations, and financial valuation of slightly less than 562,000 facilities located at 513 installations world-wide. The results of a more accurate and reliable real property inventory will better inform our decisions and actions in addressing our real property management challenges.

The Department has made significant progress towards the environmental liabilities associated with our cleanup program and disposal of equipment aspects of the financial audit. Last fall we issued clarifying policies through which we are refining the cost estimates associated with those liabilities; thereby giving the Department a better understanding of our future environmental costs and the ability to plan for any required remediation.

Mission Compatibility Evaluation Process

The Department appreciates the legislative changes made in fiscal year 2016 to section 358 of the Ike Skelton National Defense Authorization Act of Fiscal Year 2011. These changes significantly streamlined the Mission Compatibility Evaluation Process, and ensured that DOD's mission capabilities are protected from incompatible energy developments. As a result of congressional direction and our own efforts we are effectively evaluating the mission impact of utility-scale energy projects, while being mindful of the need for a clean energy future. In 2015 the Department reviewed over 3,400 applications for energy projects that were forwarded by the Federal Aviation Administration. The DOD Siting Clearinghouse worked aggressively with the Military Departments, energy project developers, and relevant states to implement affordable and feasible mitigation solutions where DOD missions might have been adversely impacted. No project reviewed in 2015 rose to the level of an unacceptable risk to the national security of the United States, which is the threshold established in section 358 of the fiscal year 2011 NDAA to object to a project. The Department is prepared for an increased number of renewable energy project developments as newly approved tax credits become available to developers.

CONCLUSION

Thank you for the opportunity to present the President's Fiscal Year 2017 Budget request for DOD programs supporting installations, energy, and the environment. Our budget situation requires that we take risk in our facilities. No one is happy about that, but we are effectively managing within this budget constrained environment and we appreciate Congress' continued support for our enterprise and look forward to working with you as you consider the fiscal year 2017 budget request.

Senator AYOTTE. I would like to call on Secretary Hammack.

STATEMENT OF HONORABLE KATHERINE G. HAMMACK, ASSISTANT SECRETARY OF THE ARMY FOR INSTALLATIONS, ENERGY AND ENVIRONMENT

Ms. HAMMACK. Thank you, Chairwoman Ayotte and Senator Kaine and other distinguished members of this subcommittee. I appreciate the opportunity to talk to you about the fiscal year 2017 budget request for military construction, environmental, energy, and base closure.

For fiscal year 2017, the Army's budget for MILCON is just over $1 billion, a reduction of 18 percent from last year's appropriations and an over 60 percent cut from fiscal year 2013. This is the lowest level of military construction for the Army since 1993.

Of the Army's military construction request, 28 percent supports combatant commanders' top priorities and another 20 percent

funds new directed missions. So that leaves only 50 percent of the military construction budget for recapitalization of existing infrastructure.

Of that 50 percent, 23 percent is going to the National Guard, supporting recapitalization of readiness centers. Senator Ayotte, as you mentioned, the National Guard readiness center report really clarifies and brings to light some of the challenges and critical facility shortfalls that the National Guard is seeing. The fiscal year 2017 request of $233 million represents a step toward addressing those shortfalls but does not come close to meeting the backlog of requirements the National Guard has.

At the request of Congress, the National Commission on the Future of the Army report was completed, and its findings were issued to Congress in January of this year. The commission specifically recommended—and I quote—that Congress and the administration should look for cost savings opportunities in areas such as energy savings and a reduced inventory of military facilities. With the planned reduction in our forces from where we are now to 450,000 by fiscal year 2018, the Army will have excess facility capacity of approximately 21 percent. If budget caps remain in place, the Army will need to further reduce the number of soldiers and our excess capacity will continue to increase.

As Mr. Potochney mentioned, the Army's budget request does represent our decision to continue to take risk in installation readiness so that we can focus our financial resources on soldier readiness. The risk we are taking in sustainment funding results in an accumulation of deferred maintenance right now estimated at approximately $7 billion. The Army needs the authorization to optimize installation capacity and free up funds to use for critical military needs. The Acting Secretary of the Army and the Chief of Staff of the Army have testified that they are fully in support of another round of base realignment and closures authorized in fiscal year 2017.

As Pete mentioned, BRAC is a proven, cost-effective means to reduce excess infrastructure. Without a BRAC, the Army continues to spend scarce resources to maintain unneeded or underutilized facilities and infrastructure, thus hurting our highest military value bases. This is an unacceptable result for the Army and a disservice to the American taxpayer. I look forward to working with you to figure out how we can shape a means to dispose of excess infrastructure in a fair and equitable manner.

The Army manages over 12 million acres of land, on which more than 200 endangered species live. Our environmental budget of approximately $1 billion addresses those areas, as well as our historic areas, our cleanup requirements, and maintaining access to training and testing lands.

The request also supports implementation of energy cost savings and ensuring energy security across our installations. We are leading the Federal Government and leveraging private sector capital for energy savings performance contracts. Since 2003, we have reduced our energy consumption by approximately 22 percent. Working with the private sector increasing renewable energy projects, we estimate we are going to generate about $250 million in savings across the life of those projects.

But the Army's top priority continues to be readiness, and so to meet our mission requirements, your Army does require ready and resilient installations.

I look forward to continuing to work with you to ensure that they have the critical resources our soldiers need to defend the homeland. So thank you for the opportunity to appear before you today, and I look forward to your questions.

[The prepared statement of Ms. Hammack follows:]

PREPARED STATEMENT BY THE HONORABLE KATHERINE G. HAMMACK

INTRODUCTION

Chairman Ayotte, Ranking Member Kaine, and Members of the Subcommittee: on behalf of the soldiers, families, and civilians of the United States Army, thank you for the opportunity to present the Army's fiscal year (FY) 2017 budget request for Installations, Energy, Environment, and Base Realignment and Closure.

The U.S. Army's top priority continues to be readiness: the Army must be ready to shape the global security environment, defend our homeland, and win the nation's wars. To meet these missions, the Army requires ready and resilient installations—our power projection platforms—to enable regional engagement and global responsiveness. Our fiscal year 2017 budget request reflects the Army's decision to take risk in our installation facilities and services to maximize available funding for operational readiness and modernization. The request focuses our limited resources on necessary and prudent investments in military construction, installation energy programs supporting operational activities, and environmental compliance.

The Army recognizes that reduced funding of installations accounts will lead to the continued degradation of our facilities and infrastructure, and risks our long-term ability to adequately support Army forces and meet mission requirements. The Army is stretched thin at a time when we are facing a global security environment that is more uncertain than ever. Without increased funding in the outyears or the authority to close and realign our installations, these problems will only get worse—expending precious funds and putting the readiness and welfare of our soldiers at risk. It is therefore particularly critical that we maximize the efficient use of our resources at this time to meet mission requirements and ensure soldier readiness.

The Army's fiscal year 2017 military construction appropriations request strikes a careful balance to meet these growing and changing demands. We look forward to working with Congress to ensure that our national security needs and priorities are met in the upcoming fiscal year and well into the future.

MAKING EFFICIENT USE OF ARMY FACILITIES

To meet readiness requirements, the Army must maintain installations that make efficient and effective use of available facilities. Army installations should be sized and resourced to meet the needs of our current and future missions, both at home and overseas.

Efficient use of our installations includes the closure of low military value installations and the divestment of excess facilities that burden Army budgets. Reducing the portfolio of Army facilities was among the recommendations of the National Commission on the Future of the Army (NCFA), established by Congress as part of the fiscal year 2015 National Defense Authorization Act (NDAA). The NCFA's report, released in January 2016, states that "Congress and the Administration should look for cost-saving opportunities in areas such as . . . a reduced inventory of military facilities."[1] The report recommends that the Army pursue these and other efficiency initiatives to free up funds that could be used to meet warfighting needs and other high-priority initiatives identified by the Commission.

The Army has made every effort to be fiscally prudent in the maintenance of excess infrastructure. The Army has employed its current authority to minimize costs and maximize the use of existing facilities. We have identified and are working to reduce excess capacity overseas through the European Infrastructure Consolidation (EIC) initiative, in addition to implementing efficiency measures across the board. Nevertheless, the modest savings attained from these efforts cannot substitute for the significant savings that can be achieved through base realignments and clo-

[1] National Commission on the Future of the Army, "Report to the President and Congress of the United States," 28 January 2016, p. 44: Recommendation 5.

sures. Without them, the Army is forced to make deep cuts at our highest military value installations because we continue spending scarce resources maintaining and operating lower military value installations.

As the Army is planning to reduce its Active Component end strength to 450,000 by fiscal year 2018, we will have over 170 million square feet of facilities that are not fully utilized—an excess facility capacity averaging 21 percent. Depending on the facility type, the excess infrastructure ranges from 18 percent to 33 percent. At an annual cost of about $3 per square foot to maintain these facilities, the Army is incurring over $500 million a year in unnecessary expenditures. If fiscal year 2018–2021 budget caps remain, the Army will need to further reduce the number of soldiers, and our excess capacity will continue to increase.

The Army cannot afford this status quo. Although Base Realignment and Closure (BRAC) forces difficult choices affecting the local communities surrounding our installations, they are already seeing fewer soldiers and families as force structure continues to decline. BRAC allows the Army to use a fair and non-partisan process to close a few lower military value locations and realign the remaining missions to help fill the excess capacity at our higher military value installations.

Today, facilities needed to support readiness, training exercises, airfields, and other priorities are deteriorating, while resources are diverted to supporting installations that could be closed. The Army cannot carry excess infrastructure costing over half a billion dollars per year indefinitely. Half a billion dollars represents the annual personnel costs of about 5,000 soldiers, which is slightly less than the number assigned to a Stryker Brigade Combat Team. It represents five annual rotations at the Army's Combat Training Centers, which are the foundation of Army combat readiness.

Until we get the BRAC authority to analyze what types of excess exist at individual installations and develop recommendations on how to best consolidate into the highest military value installations we have, we do not know which lower military value installations should be closed and/or realigned. However, we do know BRAC is a proven process producing significant reoccurring savings of roughly $2 billion per year for the Army, as validated by the Government Accountability Office (GAO). A future BRAC round has the capability to save the Army hundreds of millions of dollars per year. Once the up-front costs are paid, the intermediate and long-term savings from BRAC can fund any number of important Army warfighter initiatives, including force structure, additional CTC rotations, and modernization.

Not authorizing BRAC is a choice with real consequences. The lack of authorization for a BRAC results in our highest military value installations bearing the deepest impacts. This is an unacceptable result for the Army and a disservice to American taxpayers.

The BRAC process is a proven, cost-effective means for reducing costly excess infrastructure, while ensuring a continued focus on efficiency and consolidation. The Army strongly supports DOD's request for a BRAC round, and urges Congress to enact legislation in fiscal year 2017 authorizing the Department to begin the process.

PRESERVING READY INSTALLATIONS

Army installations—where soldiers live, work, and train—are where Army readiness is built to meet future challenges and ensure the security of our nation. Increasing global threats generate installation requirements for force protection, cyber security, and energy security. Installation budgets provide the premier All-Volunteer Army with facilities that support readiness and quality of life for our soldiers, families, and civilians.

The Army continues to focus its limited resources on supporting readiness initiatives and replacing failed facilities. As we remain under pressure from current law budget caps, our installation services must continually be adjusted. Increases in deferred maintenance and reduced investments in installations and infrastructure ultimately increase our growing backlog of failing facilities. This degrades the Army's ability to be ready to project full spectrum forces over time. Excess facility capacity burdens the Army sustainment and base operations—consuming limited dollars that need to be better invested elsewhere.

Sustainment, Restoration, and Modernization (SRM) accounts fund investments to maintain and improve the condition of our facilities. Periodic restoration and modernization of facility components are necessary to ensure the safety of our soldiers and civilians. Efforts are focused on preventing the degradation of our facilities and optimizing the use of Army investments, to prevent small maintenance issues from turning into large and expensive problems.

The fiscal year 2017 $3.1 billion budget request will help support our sustainment and restoration requirements. However, the Army is assuming risk in installation readiness to preserve operational readiness. The $2.7 billion request for Sustainment meets 71% of our Facility Sustainment Model for long-term sustainment, whereas DOD recommended meeting an 80 percent threshold to stem the tide of further facility degradation.

Reduced funding in the outyears for installation readiness adversely impacts facility condition and ultimately increases future military construction and restoration and modernization requirements. This shifts the Army's investment focus to the worst facilities, diverting resources needed to preserve our newest and best infrastructure. Deferred sustainment over the long term can lead to higher life-cycle repair costs and component failure, significantly reducing facility life expectancy.

Responsibly managing over 12 million acres of real property also means that the Army must maintain extensive base operations. Through funding for Base Operations Support (BOS) accounts, Army installations provide services similar to those associated with a municipality: public works, security protection, logistics, environment, and Family programs. These programs and services enable soldiers, civilians, and families to live and work on 154 Army installations worldwide.

Balancing BOS needs in a changing global environment calls for continued due diligence. The President's fiscal year 2017 budget therefore requests a total of $9.43 billion for BOS accounts, including $7.82 billion for the Active Component; $1.04 billion for Army National Guard; and $573.8 million for Army Reserve.

INVESTING IN ESSENTIAL INFRASTRUCTURE

The Army's request for Military Construction provides secure and sustainable facilities and infrastructure critical to supporting the combatant commander's top priorities, enabling Army missions, and maintaining soldier and unit readiness. For fiscal year 2017, the Army requests just over $1 billion for Military Construction, a reduction of $229 million—18 percent—from fiscal year 2016 appropriations. The budget allocates $503 million (approximately 50 percent) for the Active Component; $233 million (23 percent) for the Army National Guard; $68 million (7 percent) for Army Reserves; and $201 million (20 percent) for Army Family Housing Construction.

The Army continuously reviews project scope and costs. We must continue to adapt to evolving missions, account for emerging organizational changes, and meet unit readiness needs, while simultaneously seeking efficiencies at every opportunity. However, funding for Army Military Construction has reached historically low levels. This reduces the Army's ability to recapitalize inadequate and failed facilities into infrastructure that supports operations, readiness, and the welfare of the All-Volunteer Force.

The Army National Guard (ARNG) is the oldest component of the U.S. Armed Forces. The Guard has courageously participated in every war and every conflict this nation has ever fought, including Iraq and Afghanistan, and is our first line of defense in responding to domestic emergencies. These men and women perform an important mission for our country, and our military construction budget endeavors to ensure that the needs of their facilities are met.

The Guard's fiscal year 2017 Military Construction request is $232.9 million. This includes $161.3 million to support seven Readiness Centers, $50.9 million to construct three maintenance facilities, $12 million to fund minor projects, and $8.7 million for planning and design. Our ARNG budget request is focused on recapitalizing readiness centers—the heart and soul of the National Guard—as well as maintenance facilities, training areas, ranges, and barracks to allow the Guard to be ready to perform state and federal missions. These projects will address space constraints and focus on replacing failing facilities.

In the 2014 ARNG Readiness Center (RC) Transformation Master Plan, a key finding was that the RC portfolio is experiencing "critical facility shortfalls." This budget request is a small step toward addressing the ARNG's challenges.

The fiscal year 2017 budget request for the Army Reserve totals $68.2 million, with four critical projects totaling $57.9 million. Three of these will focus on replacing some of our most dilapidated and failing facilities on Army Reserve installations that are in the most dire need. This includes $21.5 million to replace an Emergency Services Center at Fort Hunter Liggett, CA—currently in failing condition—which will provide life-saving police, fire, crash and rescue, and Emergency Medical Team (EMT) services. An additional $10.3 million will support planning and design of future year projects, as well as to address unforeseen critical needs through the Unspecified Minor Military Construction account.

The Army Family Housing budget allows us to provide homes and services to the soldiers and their families living on our installations around the world. For fiscal year 2017, the Army requests $200.7 million for family housing construction. This will fund two projects in Korea, at Camp Humphreys and Camp Walker, critical to supporting consolidation and quality of life for our soldiers and their families. The projects are necessary to eliminate dilapidated family housing units and meet the U.S. Forces Korea (USFK) Commander's requirements for housing. An additional $326 million is requested to help sustain all family housing operations, cover utility costs, ensure proper maintenance and repair of government family housing units, lease properties where advantageous, and provide privatization oversight and risk mitigation.

ENSURING ENERGY SECURITY

It is operationally necessary, fiscally prudent, and mission essential that the Army have assured access to the energy required to achieve our primary objectives for the United States. The Army has led the way toward increasing energy efficiency on our installations, harnessing new energy technologies to lessen soldier battery loads, and improving our operational capabilities to reduce the need for fuel convoys. Our installation energy budget request is focused on enhancing mission effectiveness, and is supported by strong business case analyses. For fiscal year 2017, the Army is requesting $1.716 billion to pay utility bills on our installations, leverage private sector investment in renewable energy projects, and invest in discrete energy efficiency improvements.

In response to risks posed to our vulnerable energy grid, the Army is improving the "resiliency" of its installations through the use of on-base renewable sources of energy. A resilient Army installation is one that can withstand threats to its security—be they power interruptions, cyber-attacks, or natural disasters—and endure these hazards to continue its own operations and those of the local community. With this in mind, the Army conducted a test and temporarily disconnected Fort Drum, NY from the energy distribution network this past November, validating the installation's ability to operate independently from the wider grid.

The Army leads the Federal Government in the use of Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs), which allow private companies and servicers to provide the initial capital investment needed to execute projects using repayments from Utilities Services Program savings. The amount of energy saved by Army ESPC and UESC projects awarded between fiscal year 2010 and fiscal year 2015 is equal to the amount of energy consumed by Fort Bragg—one of the Army's largest and most populous installations—in a year. In total, the Army has reduced its facilities energy consumption by 22.6 percent since fiscal year 2003, while also leading the Federal Government in reductions of its potable water intensity use and non-tactical vehicle (NTV) fossil fuel use.

In addition, our energy program account funds the Office of Energy Initiatives (OEI), which helps to plan and develop third party-financed renewable energy projects. OEI currently has 14 projects completed, under construction, or in the final stages of the procurement process—together providing an incredible 350 megawatts (MW) of generation capacity. These projects represent over $800 million in private sector investment, saving funds that would otherwise be appropriated for military construction. Further, all of these projects provide electricity that is at or below the cost of conventional power.

The Army's operational energy initiatives seek to extend range and endurance, increase flexibility, improve resilience, and enhance force protection, all while enhancing mobility and freedom of action for our soldiers. Operational energy investment in science and technology has been a proven force multiplier, providing our soldiers with a distinct advantage on the battlefield. Therefore, the bulk of our operational energy budget request, $1.28 billion, is for investments in energy efficient equipment that will reduce physical and logistical burdens on our soldiers and, most importantly, help save lives.

Improved use of energy enhances mission capabilities. Our operational energy program is focused on improving soldier power, enhancing maneuver capabilities, advancing research and development of new technologies, and more effectively supporting our contingency bases. Working with the marines, we have reduced the battery weight carried by infantry soldiers by 23 percent. We have deployed tactical micro-grids and more efficient generators to our base camps, which reduce the volume and frequency of fuel resupply. Since fuel and water constitute 80 percent of our resupply convoy capacity by weight, these improvements can decrease the number of convoys, reduces the vulnerability of our soldiers, and frees up assets for other purposes.

The Army's energy program has proven results—reducing our reliance on the grid, improving energy security and efficiency, and contributing to mission readiness—all at a minimal impact to Army budgets. Energy performance on our installations is a testament to the Army's success in leveraging its limited resources to achieve considerable results. We urge Congress to continue to support the Army's energy initiatives both in operational and installation environments.

SAFEGUARDING OUR ENVIRONMENT

The mission of the Army's environmental program is three-fold: (1) to comply with environmental laws and regulations and ensure proper stewardship of our natural, cultural, and Tribal resources; (2) to meet DOD's goals for installation restoration and munitions response; and (3) to invest in environmental technology research, development, testing, and evaluation.

The Army manages over 12 million acres of land, which requires the Army to protect endangered species and historic sites or structures. Efforts are made to remediate environmental contaminants that pose a danger to human health or the environment, while supporting Army operations and our soldiers, families, and communities. Our fiscal year 2017 budget request of $1.05 billion will allow the Army to fulfill these objectives, keeping the Army on track to meet our cleanup goals and maintain full access to important training and testing lands, which are integral components of Army readiness.

CONCLUSION

Readiness is the U.S. Army's top priority—there is no other "number one." The Army's fiscal year 2017 Military Construction budget request takes moderate risk to ensure our readiness needs are met by focusing our financial resources where they are needed most.

Maintaining failing facilities and low-military value installations takes money away from critical investments in the readiness of our soldiers and the acquisition of advanced weapons and technology. BRAC allows the Army to optimize installation capacity and achieve substantial savings, freeing up scarce resources that could easily be applied elsewhere.

The strength of the U.S. Army is its people, and our installations serve as the platforms for this strength. Without ready and resilient installations, our soldiers will be ill-equipped to fight the growing threats facing our nation. We owe it to our men and women who wear the Army uniform to be prudent in the use of our installation budgets and prioritize them appropriately to ensure they have the best resources available to defend our homeland.

Thank you for the opportunity to present this testimony and for your continued support of our soldiers, families, and civilians.

Senator AYOTTE. Thank you, Secretary Hammack.

Secretary McGinn?

STATEMENT OF HONORABLE DENNIS V. McGINN, ASSISTANT SECRETARY OF THE NAVY FOR ENERGY, INSTALLATIONS AND ENVIRONMENT

Mr. MCGINN. Madam Chairman, Ranking Member Kaine, members of the committee, thank you for the opportunity to discuss our Department of the Navy's enterprise for installations.

This year's request is nearly $1.4 billion less than it was for fiscal year 2016 for the same reasons that have been noted. The prioritization on readiness and warfighting investments have reduced the amount of money available to maintain our ashore establishment.

That said, we have become very, very good at risk management. We worry about things breaking, and we have been very fortunate in a deliberate way from avoiding that to date. But as you know, leaks do not fix themselves and old buildings and facilities and utilities do not get better with age. So we are in the business of making the case that every dollar that is available for sustainment, for base operating supports, for military construction has to address in

a very deliberate way the highest priorities to maintain readiness of all of our Navy and Marine Corps installations to support the operating forces, as well as to maintain a quality of life for our sailors, marines, and their families and our civilian workforce.

We have, as the other services, invested in energy and, as Senator Kaine pointed out, a lot of that is funded by third party finance, which creates a win-win-win for the service, for the people who are doing the work, and for the people who are investing in those projects. We will continue to do that. It is not, however, any type of long-term solution for underfunding in our basic accounts.

With that, I will conclude my opening statement, and I look forward to your questions.

[The prepared statement of Mr. McGinn follows:]

PREPARED STATEMENT BY THE HONORABLE DENNIS V. MCGINN

Chairman Ayotte, Ranking Member Kaine, and members of the Subcommittee, I am pleased to appear before you today to provide an overview of the Department of the Navy's (DON's) investment in its infrastructure, energy, and environment programs.

Our Navy and Marine Corps installations and facilities are the platform to train and prepare our marines and sailors, to deploy ships, aircraft and operational forces, as well as to support our military families. We are stewards of a large portfolio of installations—valued at $229 billion ($173 billion Navy and $56 billion USMC, respectively) in plant replacement value—that is vital to our operational forces. Against the backdrop of world events and competing requirements and resources, we must balance our desired level of funding with the principal purposes for our existence: to optimize readiness of the operational forces and preserve their quality of life. Readiness-enablers include runways, piers, operations & maintenance facilities, communications & training facilities, and utilities; those that enable quality of life include barracks, mess halls, and recreation and fitness centers. We have a responsibility to balance the investments for this portfolio according to current year authorizations while being mindful of the impacts to life cycle and ever-evolving mission requirements.

INVESTING IN OUR INFRASTRUCTURE

We thank Congress for passage of the Bipartisan Budget Act (BBA) of 2015, the National Defense Authorization Act (NDAA) for fiscal year (FY) 2016 and the Consolidated Appropriations Act, 2016. Although the BBA of 2013 provided some budget stability for fiscal year 2014–2015, and limited relief from the Budget Control Act (BCA) of 2011 sequestration levels, the unfortunate consequence of constrained DON funding levels and timing is that many of our installations' piers, runways, and other facilities are degrading. We continue to make progress in replacing and demolishing unsatisfactory infrastructure, yet still have challenges based on BCA caps and on the prospect of a return to sequestration levels in fiscal year 2018.

In fiscal year 2017, the President's Budget (PB) is requesting $11.9 billion in various appropriations, a 10.4 percent decrease ($1.4B) from amounts appropriated in fiscal year 2016 to operate, maintain and recapitalize our shore infrastructure. Figure 1 compares the fiscal year 2016 enacted budget and the Fiscal Year 2017 Presidents Budget request by appropriation. Each appropriation is discussed more fully in the following sections.

Figure 1.—DON Infrastructure Funding by Appropriation

Appropriation	FY2016 enacted ($millions)	PB17 ($millions)	Delta ($millions)	Delta (%)
Military Construction, Active and Reserve	1,739	1,126	(613)	(35.3%)
Family Housing, Construction	17	94	77	452.9%
Family Housing, Operaitons	353	301	(52)	(14.7%)
BRAC	170	154	(16)	(9.4%)
Sustainment, Restoration and Modernization	3,110	2,356	(754)	(24.2%)
Base Operating Support	7,625	7,610	(15)	(0.2%)
Environmental Restoration, Navy	300	282	(18)	(6.0%)

Figure 1.—DON Infrastructure Funding by Appropriation—Continued

Appropriation	FY2016 enacted ($millions)	PB17 ($millions)	Delta ($millions)	Delta (%)
Total	13,314	11,923	(1,391)	(10.4%)

We strive to maintain a shore infrastructure that is mission-ready, resilient, sustainable and aligned with Fleet and operational priorities. Toward that end, and especially important given the risks inherent at these funding levels, Navy and Marine Corps have taken actions to more proactively manage the installations portfolio. For example, Navy has taken the initiative to:

- Standardize the facility inspection and Facility Condition Index (FCI) process that quantifies facility condition and documents the needed maintenance and repair work within our facilities portfolio. This information helps guide spending of available dollars.
- Incorporate principles of condition-based maintenance across all buildings, utilities and structures, in order to prioritize work on only the most critical components (e.g. roofs and exterior walls) at our most critical facilities or on components that relate to life, health and safety. We are able to focus resources on specific building components and systems where failure jeopardizes personnel safety or a warfighting mission.
- Led by Commander, Navy Installations Command, exercise a single integrated forum to receive and adjudicate demand signals from Fleet and Enterprise Commanders to identify and prioritize projects, optimizing the available resources.
- Maintain focus on reducing footprint by demolishing or divesting unneeded buildings as funds are available, and recapitalizing existing facilities in lieu of new construction when possible.
- Supplement available appropriated dollars by the increased use of authorities that leverage third party financing for improving infrastructure while lowering energy consumption and energy costs.
- We support a DOD legislative proposal that would provide temporary authority to classify facility conversion projects as repair projects. This proposal would afford the Services the flexibility to use operations and maintenance funding to repurpose existing facilities. The proposal will help installations increase their facility utilization, will enable increased efficiency and effectiveness, and will support footprint reduction and energy efficiency goals. The Navy will collect data to determine the effectiveness of this proposal.

Military Construction (MILCON)

Navy's MILCON program funds infrastructure at home and abroad, supports our warfighters, and meets the objectives in CNO's Design for Maintaining Maritime Superiority and the Secretary of Defense's Strategic Guidance. Together, Navy and Marine Corps will invest $1.13 billion worldwide in military construction funds to support warfighting and modernization of our utilities and critical infrastructure.

For Navy, the fiscal year 2017 request is for 25 projects, Planning and Design and Unspecified Minor Construction, at a budget of $700 million, which is 29 percent lower than the fiscal year 2016 as-enacted budget of $986 million. Navy has invested an average of $1 billion annually in MILCON since 2010, and the fiscal year 2017 request is the lowest since 1999. Navy continues to invest prudently in MILCON, but assumes long-term risk in deferring recapitalization of our existing infrastructure.

The Navy's fiscal year 2017 MILCON request supports combatant commander requirements, enables new platforms/missions, upgrades utilities and energy infrastructure, recapitalizes Naval Shipyard facilities, and supports weapons of mass destruction (WMD) training requirements. They include:

Combatant Commander Support ($233 million, 9 projects)
Medical/Dental Facility–Camp Lemonnier Djibouti
Harden POL Infrastructure–NAVBASE Guam
Coastal Campus Utilities Infrastructure–NAVBASE Coronado
Coastal Campus Entry Control Point–NAVBASE Coronado
Communication Station–NAVSTA Rota
Grace Hopper Data Center Power Upgrades–NAVBASE Coronado
Missile Magazine–NAVWPNSTA Seal Beach
P–8A Hanger Upgrade–NSA Naples (Keflavik, Iceland)
P–8A Aircraft Rinse Rack–NSA Naples (Keflavik, Iceland)

New Platform/Mission ($198 million, 6 projects)
UCLASS RDT&E Hangar–Naval Air Station PAX River
Triton Mission Control Facility–NAS Whidbey Island
Triton Forward Operating Base Hangar–VARLOCS
EA–18G Maintenance Hangar–NAS Whidbey Island
F–35C Engine Repair Facility–NAS Lemoore
Air Wing Simulator Facility–NAS Fallon

Utilities and Energy Infrastructure ($85 million, 4 projects)
Upgrade Power Plant & Electrical Distribution System–PMRF Barking Sands
Energy Security Microgrid–Naval Base San Diego
Service Pier Electrical Upgrades–Naval Base Kitsap
Shore Power (Juliet Pier)–COMFLEACT Sasebo

Naval Shipyards ($76 million, 4 projects)
Sub Refit Maintenance Support Facility–Naval Base Kitsap
Nuclear Repair Facility–Naval Base Kitsap
Utilities for Nuclear Facilities–Portsmouth Navy Shipyard (NH)
Unaccompanied Housing Consolidation–Naval Shipyard Portsmouth (NH)

WMD Training ($21 million, 1 project)
Applied Instruction Facility–NAS Whiting Field, Milton, FL

MILCON Reserves ($11 million, 1 project)
Joint Reserve Intelligence Center–NAS JRB New Orleans

For the Marine Corps, the fiscal year 2017 request is for 11 projects, Planning and Design and Unspecified Minor Construction, at a budget of $426 million, which is 44 percent lower than the fiscal year 2016 as enacted budget of $754 million. Investments in MILCON will primarily support new warfighting platforms, weapons support, force relocation facilities (Rebalance to the Pacific, Aviation Plan), improve security and safety posture, and recapitalize and replace inadequate facilities. The 11 projects in the Marine Corps fiscal year 2017 MILCON budget include:
New Platform and Weapons Support Facilities ($110 million, 2 projects):
F–35 aircraft maintenance hangar at MCAS Beaufort, SC; and
F–35 aircraft maintenance shops at Kadena Air Base, Japan.

Facilities to Support Force Relocations/Increased Force Requirements ($119 million, 3 projects):
Aircraft maintenance hangar for VMX–22–MCAS Yuma;
Expansion of Reserve Center Annex-Galveston; and
Utility upgrades for Finegayan cantonment area—Guam.

Safety, Security, and Environmental Compliance ($31 million, 2 projects):
EPA-required central heating plant conversion-MCAS Cherry Point; and
Range safety improvements at MCB Camp Lejeune.

Recapitalize and Replace Inadequate Facilities ($117 million, 4 projects):
Replace and consolidate communications, electrical, and maintenance shops-MCB Hawaii;
Replace unreliable electrical power supply at reserve center-Brooklyn, NY;
Replace reserve training facilities-Syracuse, NY; and
Modernize recruit barracks and construct a recruit reconditioning center for injured recruits at MCRD Parris Island.

Reduced funding availability in MILCON will result in reduced investments in projects that support the consolidation of functions or replacement of existing facilities, which will cause degradation of the long-term health of existing facilities.

Relocation of marines to Guam remains an essential part of the United States' larger Asia-Pacific strategy of achieving a more geographically distributed, operationally resilient and politically sustainable force posture in the region. Guam provides a critically important forward base for our expeditionary marine ground and air forces and also provides key sustainment capabilities for our forward-deployed ships and submarines. The permanent basing of marines in Guam significantly contributes to maintaining regional stability and provides reassurance for key allies and partners across the Pacific region.

With the PB 2017 budget request, the Navy will exceed the minimum 6 percent mandated by 10 USC 2476 for depot capital investment. The Navy has met this statutory requirement every year since its enactment in 2006.

Family Housing

The Department continues to rely on the private sector as the primary source of housing for sailors, marines, and their families. When suitable, affordable, private

housing is not available in the local community, the Department relies on government-owned, privatized, or leased housing. The fiscal year 2017 request of $395 million supports Navy and Marine Corps family housing operation, maintenance, renovation, and construction requirements. Of this amount, $79 million is for the first phase of replacement of inadequate family housing at Naval Support Activity Andersen, Guam and $11 million is for the renovation of family housing at Marine Corps Air Station Iwakuni, Japan. The budget request also includes $301 million for the daily operation, maintenance, and utilities expenses of the military family housing inventory.

To date, over 62,000 Navy and Marine Corps family housing units have been privatized through the Military Housing Privatization Initiative (MHPI). MHPI has enabled the Department to leveraged private sector resources to improve living conditions for sailors, marines, and their families.

Facilities Sustainment, Restoration and Modernization (FSRM)

To maximize support for warfighting readiness and capabilities, the President's fiscal year 2017 budget request continues to carefully accept risk in FSRM.

The fiscal year 2017 budget requests $1.9 billionto sustain infrastructure, a 16 percent reduction from the fiscal year 2016 enacted value of $2.3B. Navy and the Marine Corps have resourced fiscal year 2017 facilities sustainment at 70 percent and 74 percent, respectively, of the Department of Defense (DOD) Facilities Sustainment Model. Over time, this lack of sustainment will cause our facilities to deteriorate.

To restore and modernize our existing infrastructure, the fiscal year 2017 budget request is $463 million, a 38 percent reduction from the fiscal year 2016 enacted value of $749 million. Budget constraints have compelled the Department to focus its limited resources to address life/safety issues and the most urgent deficiencies at our mission-critical facilities, piers, hangars, runways and utility systems. We are committed to fully funding infrastructure at strategic weapons facilities, accelerating Naval shipyard infrastructure improvements, supporting the Marine Corps Aviation Plan, and force relocations. However, as the Department defers less critical repairs, especially for facilities not directly tied to DON's warfighting mission, certain facilities degrade and the overall facilities maintenance backlog increases. At current funding levels, the overall condition of DON infrastructure will slowly, but steadily, erode over the Future Years Defense Plan (FYDP). Although we are proactively managing the risk we are taking in our shore infrastructure, we acknowledge that this risk must eventually be addressed.

Base Operating Support (BOS)

The fiscal year 2017 BOS request of $7.6 billionis essentially the same as fiscal year 2016 levels. Similar to the risk taken in our facility investments, the Department is accepting lower standards in base operating support at our installations. Base operations at Navy and Marine Corps installations are funded to the minimum acceptable standards necessary to continue mission-essential services. We have enforced low service levels for most installation functions (administrative support, base vehicles, grounds maintenance, janitorial and facility planning) in order to maintain our commitment to warfighting operations, security, family support programs, and child development. These measures, while not ideal, are absolutely necessary in the current fiscal environment.

Safety Program

Our initiatives are improving the skills of our Safety Professionals directly benefiting over 800,000 personnel (uniformed personnel (Active and Reserve) and civilian) executing diverse, complex missions across the globe. DON's safety program has expanded its global online training resources to ensure the Naval Safety workforce is educated and trained through more effective and modernized cost efficient methods. We are acquiring commercial off-the-shelf information technology tools to enhance our tireless fight to reach our objective of zero mishaps. The Risk Management Information initiative will comprise a streamlined mishap reporting system, data base consolidation, state-of-the-art analytical innovations, and data capabilities to improve our predictive abilities for safer sailors and marines.

MANAGING OUR FOOTPRINT

Base Realignment and Closure (BRAC)

We appreciate the Congressional support for additional fiscal year 2016 funds for environmental cleanup at BRAC properties. For fiscal year 2017, the Department has planned to expend $154 million to continue cleanup efforts, caretaker operations, and property disposal. By the end of fiscal year 2015, we disposed of 94 per-

cent (178,180 acres) of our excess property identified in previous BRAC rounds through a variety of conveyance mechanisms. Of the remaining 6 percent (11,674 acres), the majority is impacted by complex environmental issues. Of the original 131 installations with excess property, Navy only has 17 installations remaining with property to dispose.

Although many tough cleanup and disposal challenges remain from prior BRAC rounds, we have fostered good working relationships with regulatory agencies and local communities to tackle these complex issues and provide creative solutions to support redevelopment priorities.

Compatible Land Use

DON has an aggressive program to promote compatible land use adjacent to our installations and ranges. This program helps Navy and Marine Corps to operate and train in cooperation with surrounding communities, while protecting important natural habitats and species. We conduct Air Installation Compatible Use Zone Studies and Range Area Compatible Use Zone Studies, and provide them to nearby communities for their consideration in the exercise of their land management responsibilities.

A key element of the program is Encroachment Partnering, which involves cost-sharing partnerships with states, local governments, and conservation organizations to acquire interests in real property proximate to our installations and ranges.

The Department is grateful to Congress for providing funds for the DOD Readiness and Environmental Protection Integration (REPI) Program. Since 2005, DON has acquired restrictive easements on approximately 91,000 acres.

PROTECTING OUR ENVIRONMENT

The Department is committed to environmental compliance, stewardship and responsible fiscal management that support mission readiness and sustainability, investing over $1 billionacross all appropriations to achieve our statutory and stewardship goals. The funding request for fiscal year 2017 is about 2.3 percent less than enacted in fiscal year 2016, as shown in Figure 2:

Figure 2.—DON Environmental Funding by Program

Category	FY2016 enacted ($millions)	PB17 ($millions)	Delta ($millions)	Delta (%)
Conservation	86	93	7	8.1%
Pollution Prevention	22	19	(3)	(13.6%)
Compliance	480	485	5	1.0%
Technology	36	37	1	2.8%
Active Base Cleanup (ER,N)	300	282	(18)	(6.0%)
BRAC Environmental	158	141	(17)	(10.8%)
Total	1,082	1,057	(25)	(2.3%)

The Department continues to be a Federal leader in environmental management by focusing resources on achieving specific environmental goals, implementing efficiencies in our cleanup programs and regulatory processes, proactively managing emerging environmental issues, and integrating sound policies and lifecycle cost considerations into weapon systems acquisition to achieve cleaner, safer, more energy-efficient and affordable warfighting capabilities without sacrificing operational capability.

In fiscal year 2017 we will complete environmental planning for Navy's Records of Decision (RODs) for EA–18G Growler training at Whidbey Island, Washington. As an example of our land stewardship responsibilities, we will complete natural and cultural surveys to support Marine Corps air and ground training at Twentynine Palms, California. To maintain our environmentally responsible operations at sea, we will continue to be leaders in ocean research by studying marine mammal behavioral response to sound in water. We will also build on our accomplishments this past fiscal year, which included finalizing the environmental planning processes for the new Marine Corps Base on Guam; completing a five year authorization for testing and training in the Marianas Island Testing and Training area with National Marine Fisheries Service; and successfully rearing five hundred hatchlings and releasing thirty five mature tortoises with the University of California, Los Angeles (UCLA) at the Marine Corps Twentynine Palms Desert Tortoise Head Start Facility.

Coastal installations and the communities in which our sailors, marines, civilians and their families live are especially vulnerable to rising sea levels and increased storm surge resulting from a changing climate. The resilience of these installations and communities is essential to future readiness associated with all naval mission areas. The DON continues to develop relevant policy and guidance to address climate change challenges.

ENHANCING COMBAT CAPABILITIES

The Department of the Navy's Energy Program has two central goals: (1) enhancing Navy and Marine Corps combat capabilities, and (2) advancing energy security afloat and ashore. Partnering with other government agencies, academia and the private sector, we strive to meet these goals with the same spirit of innovation that has marked our history—new ideas delivering new capabilities in the face of new threats.

Our naval forces offer us the capability to provide power and presence—to deter potential conflicts, to keep conflicts from escalating when they do happen, and to take the fight to our adversaries when necessary. Presence means being in the right place, not just at the right time, but all the time; and energy is key to achieving that objective. Using energy more efficiently allows us to go where we're needed, when we're needed, stay there longer, and deliver more firepower when necessary.

Improving our efficiency and diversifying our energy sources also saves lives. During the height of operations in Afghanistan, we were losing one marine, killed or wounded, for every 50 convoys transporting fuel into theater. That is far too high a price to pay. Reducing demand at the tip of the spear through energy efficiency, behavior change and new technologies takes fuel trucks off the road.

I'll mention just a couple of examples. The work that the Marine Corps is doing to integrate solar power and software into autonomous UAVs will allow them to take advantage of environmental conditions and provide persistent surveillance for periods far in excess of our current capabilities without refueling. They are also working on technologies that harvest kinetic and other forms of energy into an integrated power system capable of running a marine's radios and electronic gear. These are real combat capabilities that will result in increased lethality.

Navy is pursuing similar combat capabilities. In 2016 we will begin installing hybrid electric drives in our destroyers, enabling our ships to remain on station longer during low speed missions and extend time between refueling. This is the same technology that is now onboard USS *Makin Island* and USS *America,* allowing those ships to stay on station between refueling far longer than their predecessors.

Improving Energy Security and Resilience

Reliable and affordable electricity at our installations is critical to mission effectiveness. Measures to reduce vulnerability and to increase resiliency of the electrical system improve and protect national security. The 2013 attack on key grid infrastructure in California is a reminder of how fragile the commercial system can be. The Department of the Navy recognizes this vulnerability and is working to enhance our energy security.

Navy's Renewable Energy Program Office (REPO) has brought one gigawatt (GW) of renewable energy into procurement. We expect those renewable energy projects to yield hundreds of millions in projected utility cost savings and even more important energy security benefits. For example, last August we celebrated the procurement of 210 megawatts (MW) of solar generation for 14 installations in California, with a projected cost savings of $90 million over a 25-year term. At Naval Submarine Base Kings Bay, Georgia Power Company is constructing a 42 MW solar generation facility, which the base will have access to during external grid outages. Marine Corps Logistics Base Albany will receive access to a 44 MW on-base solar generation facility for use during grid outages and a second feeder line from Georgia Power Company's grid.

DON's successful industry partnerships form a foundation for future third party-financed energy resiliency projects in the form of microgrids, battery storage, fuel cells, and distributed generation, where these capabilities make sense. Industry has shown interest in battery storage by proposing facilities located at two Navy installations in California. The Arizona Power Service recently signed an agreement to develop a microgrid at Marine Corps Air Station Yuma and will provide the base unlimited access to onsite backup power, eliminating the need for up to 41 diesel generators. These and future energy security efforts using existing title 10 authorities will help make DON's installations more energy secure and resilient mission platforms.

Strategic Investments in the Future

We endeavor to make investments that enhance our operational flexibility. Our program to test and certify emerging alternative fuels is critical for us to keep pace with developments in the private sector and maintain interoperability with commercial supply chains. In addition, the Defense Logistics Agency (DLA) Energy (through which Navy buys operational fuels) recently awarded a contract to provide us with an alternative fuel blend of F–76—the fuel we use to power our ships. The contract was awarded at a cost competitive rate with traditional fossil fuels and represents an important step toward diversifying our fuel supply chains.

CONCLUSION

Navy-Marine Corps Energy, Installations and Environment team will continue to carefully and deliberately manage our portfolio to optimize mission readiness, and improve quality of life. The Department's fiscal year 2017 request makes needed investments in our infrastructure and people, preserves access to training ranges, and promotes environmentally prudent and safe actions, while ensuring energy resiliency and security.

Thank you for the opportunity to testify before you today. I look forward to working with Congress to deliver an innovative, resilient, sustainable and secure shore infrastructure that enables mission success for the United States Navy and Marine Corps, the most formidable expeditionary fighting force in the world.

Senator AYOTTE. Thank you, Secretary McGinn.

Secretary Ballentine?

STATEMENT OF HONORABLE MIRANDA A.A. BALLENTINE, ASSISTANT SECRETARY OF THE AIR FORCE FOR INSTALLATIONS, ENVIRONMENT AND ENERGY

Ms. BALLENTINE. Good afternoon, Chairwoman Ayotte, Ranking Member Kaine, distinguished members of the committee. It is a great honor and pleasure to represent America's airmen before you today.

Look, the bottom line for the Air Force is that our installations are too old, too big, and too expensive to operate. Twenty-four years of continuous combat really have taken their toll.

Like the other services, in order to afford other Air Force priorities, our total fiscal year 2017 PB [President's Budget] facilities request at $8.3 billion is down 4 percent compared to last year. That includes MILCON, FSRM [facilities sustainment, restoration, and modernization], environmental accounts, former BRAC implementation, and environmental programs.

The Air Force has prioritized MILCON this year over FSRM, requesting $1.8 billion in MILCON, which is actually up 14 percent compared to last year, and $2.9 billion in FSRM, which is down about 10 percent compared to last year.

I expect our backlog of degrading facility requirements to grow.

Our MILCON program is three-tiered similar to the other services. First, we support combatant commanders' requests at about 16 percent of our MILCON budget this year. Second, 34 percent of our budget supports the beddown of new weapon systems to ensure that they have the facilities required. Third, about 40 percent of our fiscal year 2017 MILCON request this year allows us to begin to chip away at that significant backlog of existing infrastructure recapitalization needs.

In fiscal year 2017, we funded only about 30 of the 500 top priority projects that our MAJCOM [major command] commanders submitted, about 30 of the 500.

Let me briefly address the Air Force energy programs. The Air Force is focused on mission assurance through energy assurance. We are taking a holistic enterprise approach to our installation energy programs with an emphasis on resilient, cost effective, cleaner energy projects.

The Air Force is also developing, acquiring, and improving aviation energy technologies and behaviors to improve the range and endurance of our weapon systems.

Finally, the Air Force does need another round of base realignment and closure. We have about 30 percent excess infrastructure capacity. Since the Gulf War, we have reduced our combat-coded fighter squadrons from 134 to 55. That is a nearly 60 percent reduction. Yet, all BRACs in that time have only reduced U.S. bases by about 15 percent. BRAC is not easy.

Congress has laid out three very specific concerns, which you reiterated today in your opening statements.

First, communities. Air Force communities are some of our greatest partners. Our friends and our families live there. The Association of Defense Communities recently asked community leaders what they thought about BRAC, and 92 percent said that they believe BRAC is better for their communities than the *status quo* of hollowed-out bases, reduced manning, and reduced funding. Without BRAC, many communities will continue to suffer the economic detriment of hollowed-out bases without the economic benefits that only BRAC legislation brings.

Second, cost. Congress rightly wants to ensure that the savings of BRAC justify the costs, and we agree. Simply put, the results for the Air Force have been staggering. Previous rounds of BRAC save the Air Force $2.9 billion each and every year. The Air Force supports new BRAC legislation that emphasizes recommendations that yield net savings within 5 years.

Third, mission. Some have questioned the wisdom of right-sizing infrastructure to current force structure. We have no intent to close infrastructure that may be needed for future missions. Through five previous rounds of BRAC and numerous force structure changes, we have always left room for future maneuvering, and we always will.

We continue to leverage community partnerships, enhanced use leases, power purchase agreements, but we really need BRAC authority to significantly reduce our spend on installations.

In closing, the Air Force has made hard, strategic choices during this budget request, attempting to strike that delicate balance between readiness and modernization. We believe it is the right way ahead.

Chairman Ayotte, Ranking Member Kaine, members of the committee, I ask for your full support of the Air Force 2017 program, and I thank you for questions.

[The prepared statement of Ms. Ballentine follows:]

PREPARED STATEMENT BY MIRANDA A. A. BALLENTINE

Miranda A.A. Ballentine is the Assistant Secretary of the Air Force for Installations, Environment, and Energy, Headquarters U.S. Air Force, the Pentagon, Washington, DC. Ms. Ballentine is responsible for the oversight, formulation, review and execution of plans, policies, programs and budgets for installations, energy, environment, safety and occupational health.

Prior to assuming her current position, Ms. Ballentine served as the Director of Sustainability for Global Renewable Energy and Sustainable Facilities at Walmart Stores, Inc. In this role, she developed and executed global strategies to reduce operating expenses in over 10,000 facilities in over 25 countries. Through acceleration of renewable energy, energy efficiency, and sustainability, Ms. Ballentine identified over $1 billion in potential annual expense reductions and 9 million metric ton of potential avoided greenhouse gas emissions.

Prior to joining Walmart, Ms. Ballentine was Vice President for Investor Analysis and Chief Operating Officer at David Gardiner & Associates, where she informed multi-million dollar investment decisions by analyzing companies' off-balance sheet risks and opportunities, including climate and energy programs, environmental management, labor relations, diversity, and corporate governance.

Ms. Ballentine previously served as the chair of the World Economic Forum's Global Growth Action Alliance's Renewable Energy Working Group, as well as a number of non-profit boards, including the Sustainability Consortium's External Relations Committee; the NetImpact Corporate Advisory Council; and the George Washington University's Institute for Sustainability Research, Education, and Policy Advisory Board.

In 2013, Ms. Ballentine was selected by the World Economic Forum for membership in its Forum of Young Global Leaders. Ms. Ballentine also serves as a guest lecturer at a number of national business schools, including Duke University, University of North Carolina, and George Washington University.

EDUCATION

1996 Bachelor of Science Degree in Psychology, Colorado State University, Magna cum Laude

2004 Master of Business Administration in Environmental Management and Policy and International Business, George Washington University

CAREER CHRONOLOGY

1. 2001 – 2004, Operations Director, Solar Electric Light Fund, Washington, DC.
2. 2003 – 2008, Vice President of Investor Analysis and Chief Operation Officer, David Gardiner & Associates, LLC, Washington, DC.
3. 2008 – 2014, Director of Sustainability for Renewable Energy and Sustainable Buildings, Walmart, Washington, DC.
4. 2014 – present, Assistant Secretary of the Air Force for Installations, Environment, and Energy

(Current as of October 2015)

INTRODUCTION

Ready and resilient installations are a critical component of Air Force operations. Unfortunately, twenty-four years of continuous combat, a fiscal environment constrained by the Budget Control Act (BCA), and a complex security environment have taken their toll on Air Force infrastructure and base operations support investments. Furthermore, the Air Force is currently maintaining installations that are too big, too old and too expensive for current and future needs. This forces us to spend scarce resources on excess infrastructure instead of operational and readiness priorities.

Air Force installations are foundational platforms comprised of both built and natural infrastructure. Our installations serve as the backbone for Air Force enduring core missions delivering air, space and cyberspace capabilities; sending a strategic message to both allies and adversaries signaling commitment to our friends and intent to our foes; foster partnership-building by stationing our airmen side-by-side with our Coalition partners; and enable worldwide accessibility when our international partners need our assistance and, when necessary, to repel aggression. Taken together, these strategic imperatives require us to provide efficiently operated, sustainable installations to enable Air Force core missions.

The total Air Force fiscal year (FY) 2017 facilities budget request is down 4 percent from fiscal year 2016 at $8.5 billion including Military Construction (MILCON), Facility Sustainment, Restoration and Modernization (FSRM), Housing, BRAC implementation and Environmental programs. As in fiscal year 2016, the Fiscal Year 2017 President's Budget (PB) request for the Air Force attempts to strike the delicate balance between a ready force today and a modern force for tomorrow while also continuing its recovery from the impacts of sequestration and adjusting to sustained budget reductions. The result is the Air Force facilities budget accepts near term risk in the entire infrastructure Maintenance and Repair portfolio of MILCON

and Sustainment, Restoration and Modernization accounts in order to protect readiness and maintain credible capabilities in other core missions. In doing so, it acknowledges this choice will have long term effects on the overall health of infrastructure.

The Air Force's Fiscal Year 2017 President's Budget includes $1.8 billion in Military Construction (MILCON) requirements, a 14 percent increase over the Fiscal Year 2016 President's Budget. This allows the Air Force to replace degraded facilities that can no longer wait, while still meeting combatant commander (COCOM) needs and new weapon systems beddown requirements that must be accomplished now. This also allows us to provide an equitable distribution of $333 million to the Guard and Reserve components. This increase was funded by reductions in our Sustainment, and Restoration and Modernization accounts for which we request $2.9 billion, about 10 percent less than last year. We recognize this reduction will expand a backlog of facility investment requirements that already totals nearly $20 billion. To assure continued focus on taking care of our airmen and their families, the Fiscal Year 2017 President's Budget also requests $274 million for Military Family Housing operations and maintenance, and $61.4 million for Military Family Housing Construction, $56.4 million for Base Realignment and Closure and $842 million for Environmental programs.

MILITARY CONSTRUCTION

The fiscal year 2017 MILCON program consists of three primary tiers. The first is support to the COCOMs; the second is providing facilities for the beddown of new weapons systems by their need dates; and the third is replacing our most critical existing mission degraded infrastructure on a worst-first basis.

COCOM Support

This year's President's Budget request includes $293 million for COCOM requirements; $35 million for Central Command (CENTCOM), $97 million for European Command (EUCOM), $29 million for Northern Command (NORTHCOM), and $293 million for Pacific Command (PACOM). The Air Force continues with phase three of the U.S. European Command Joint Intelligence Analysis Center consolidation at Royal Air Force (RAF) Croughton, United Kingdom, which also supports four other COCOMs. Additionally, the Asia-Pacific Theater remains a focus area for the Air Force where we will make a $109 million investment in fiscal year 2017 to ensure our ability to project power into areas which may challenge our access and freedom to operate, and continue efforts to improve resiliency. Guam remains one of the most vital and accessible locations in the western Pacific. For the past ten years, Joint Region Marianas (JRM)-Andersen AFB, Guam has housed a continuous presence of our Nation's premier air assets, and will continue to serve as the strategic and operational center for military operations in support of a potential spectrum of crises in the Pacific. Additionally, fiscal year 2017 investments in the Pacific Theater include Kadena Air Base, Japan; Royal Australian Air Force Base (RAAF) Darwin, Australia; and the Commonwealth of Northern Marianas Islands (CNMI).

To further support PACOM's strategy, the Air Force is committed to hardening critical structures, mitigating asset vulnerabilities, increasing redundancy, fielding improved airfield damage repair kits and upgrading degraded infrastructure as part of the Asia-Pacific Resiliency program. In 2017, the Air Force plans to construct a Satellite Communications Command, Control, Communications, Computers and Intelligence facility at JRM–Andersen AFB, Guam to sustain Guam's continued functionality. The Air Force also intends to recapitalize the munitions structures in support of the largest munitions storage area in the Air Force. Furthermore, the fiscal year 2017 budget invests in the aircraft parking apron expansion and aircraft maintenance support facility projects at RAAF Darwin supporting the Air Force's participation in bilateral training exercises. The fiscal year 2017 PB investment also includes a land acquisition in CNMI, to support the Air Force's operational capability to execute weather diverts, accomplish training exercises and respond to natural disasters. Our total fiscal year 2017 COCOM support makes up 16 percent of the Air Force's MILCON request.

New Mission Infrastructure

The Fiscal year 2017 President's Budget request includes $623 million of infrastructure investments to support the Air Force's modernization programs, including the beddown of the F–35A, KC–46A, Combat Rescue Helicopter (CRH) and the Presidential Aircraft Recapitalization. The Air Force's ability to fully operationalize these new aircraft depends not only on acquisition of the aircraft themselves, but also on the construction of the aircraft's accompanying hangars, maintenance facilities, training facilities, airfields and fuel infrastructure.

The fiscal year 2017 PB includes $132.6 million for the beddown of the KC–46A at five locations. This consists of $11.6 million at Altus AFB, Oklahoma, the Formal Training Unit (FTU); $8.6 million at McConnell AFB, Kansas, the first Main Operating Base (MOB 1); $1.5 million at Pease International Tradeport Air National Guard Base (ANGB), New Hampshire, the second Main Operating Base (MOB 2); $17 million at Tinker AFB, Oklahoma, for KC–46A depot maintenance; and $93.9 million at Seymour Johnson AFB, NC, the preferred alternative for the third Main Operating Base (MOB 3).

This request also includes $340.8 million for the beddown of the F–35A at five locations consisting of $10.6 million at Nellis AFB, Nevada; $20 million at Luke AFB, Arizona; $10.1 million at Hill AFB, Utah; $315.6 million at Eielson AFB, Alaska; and $4.5 million at Burlington International Airport, Vermont. Additionally, the fiscal year 2017 investment includes $7.3 million in support of the CRH beddown at Kirtland AFB, New Mexico. As the Air Force continues its efforts to modernize its fleet, we have moved forward to select installations to beddown our newest airframes. In January of this year, we announced the enterprise and criteria for the fourth KC–46A Main Operation Base (MOB 4).

In preparation for the Presidential Aircraft Recapitalization acquisition, the Air Force's 2017 budget request accounts for the planning and design requirements essential to this future beddown and a project to relocate the Joint Air Defense Operations Center Satellite Site at Joint Base Andrews, Maryland.

Existing Mission Infrastructure Recapitalization

This year's President Budget request also includes $723 million in MILCON recapitalization projects addressing existing mission infrastructure. Existing mission projects include requirements that revitalize the existing facility plant and projects that address new initiatives for capabilities already contained in the Air Force inventory. The Air Force's fiscal year 2017 PB supports Nuclear Enterprise priorities and includes three MILCON projects, totaling $41 million. With this budget submission, the Air Force intends to provide a Missile Transfer Facility at F.E. Warren AFB, Wyoming, which recapitalizes the current facility and continues to ensure proper processing of missiles in support of the Missile and Alert Launch Facilities at three sites. The fiscal year 2017 budget also includes a Consolidated Communications Facility recapitalization project at Barksdale AFB, Louisiana. Additionally, a new Missile Maintenance Dispatch Facility at Malmstrom AFB, Montana will be built in support of the UH–1 Helicopter and Tactical Response Force facilities beddown. Together, these projects will consolidate scattered installation functions and provide adequately sized and configured operating platforms for the UH–1 recapitalization. Additionally, the fiscal year 2017 PB request includes three munitions storage projects to accommodate the realignment and relocation of primary Standard Air Munitions Package assets from McConnell Air Force Base, Kansas to Hill Air Force Base, Utah.

The Air Force's fiscal year 2017 PB supports airfield recapitalization requirements to include a project to construct an updated, properly sized Air Traffic Control Tower at McConnell Air Force Base, Kansas and a new aircraft maintenance hangar in support of the Global Hawks at JRM–Andersen AFB, Guam. Additionally, the Air Force's Fiscal Year 2017 PB supports force protection recapitalization requirements to include a project that constructs a compliant main gate complex at RAF Croughton, United Kingdom and new Combat Arms Training Maintenance facilities at Buckley Air Force Base, Colorado, Yokota Air Base, Japan, and Joint Base-Andrews, Maryland.

In total, our fiscal year 2017 request represents a balanced approach ensuring critical infrastructure requirements to meet mission needs and operational timelines.

FACILITY SUSTAINMENT, RESTORATION AND MODERNIZATION

In fiscal year 2017, the Air Force requests $2.9 billion for Facilities Sustainment, Restoration and Modernization (FSRM), which is approximately 10 percent less than our fiscal year 2016 PB request and funds sustainment to 77 percent of the OSD modeled requirement. The Restoration and Modernization account is reduced by 34 percent in fiscal year 2017 as compared to fiscal year 2016. The Air Force cut this account in order to increase the MILCON program and therefore reduce the greatest risk within the facility infrastructure portfolio this year. Nonetheless, the Air Force's fiscal year 2017 FSRM request attempts to keep "good facilities good" as the AF continues to focus limited resources on "mission critical, worst-first" facilities through application of asset management principles.

HOUSING

During periods of fiscal turmoil, we must never lose sight of our airmen and their families. Airmen are the source of Air Force airpower. Regardless of the location, the mission, or the weapon system, our airmen provide the innovation, knowledge, skill, and determination to fly, fight and win. There is no better way for us to demonstrate our commitment to servicemembers and their families than by providing quality housing on our installations. The Air Force has privatized its military family housing (MFH) at each of its stateside installations, including Alaska and Hawaii. The Air Force has 32 projects at 63 bases, with an end-state of 53,240 homes and we are now focused on long-term oversight and accountability of the sustainment, operation and management of this portfolio.

Concurrently, the Air Force continues to manage approximately 18,000 government-owned family housing units at overseas installations. Our $274 million fiscal year 2017 Family Housing Operations and Maintenance (O&M) sustainment funds request allows us to sustain adequate units and improve inadequate units, and our $61.4 million request for Family Housing Construction funds improves 204 tower units at Camp Foster, Okinawa and 12 units on Kadena Air Base. This request will ensure we support the housing requirements of our airmen and their families as well as the Joint Service members the Air Force supports overseas.

Similarly, our focused investment strategy for dormitories enables the Air Force to achieve the DOD goal of 90 percent adequate dormitory rooms for permanent party unaccompanied airmen, while continuing to support airmen in formal training facilities. The fiscal year 2017 PB MILCON request includes two training dormitories at Fairchild AFB, Washington and Joint Base San Antonio, Texas. With Congressional support, we will continue to ensure wise and strategic investment in these quality of life areas to provide modern housing and dormitory communities. More importantly, your continued support will take care of our most valued asset—our airmen and their families.

AIR FORCE COMMUNITY PARTNERSHIP PROGRAM

In support of the Air Force priority to "make every dollar count", the Air Force has put a concentrated effort to cultivate partnerships between our installations and the local communities. The Air Force Community Partnership program has been heralded by our Wing Commanders and community leaders as an ideal forum for exploring win-win partnerships. To date, there are 53 installations and communities participating in the Air Force Community Partnership program. Since the program's inception in 2013, we have completed more than 140 partnership agreements that have generated over $23 million in Air Force benefits and $24 million in community benefits. Beyond the tangible savings, the program creates an invaluable forum for fostering relationships and promoting innovation. Installations and communities now have the framework and tools needed to finalize many of the over 1,000 potential initiatives identified to date, such as shared medical/EMT training, joint small arms ranges, and shared refuse management services.

Without losing focus on fostering a partnership mentality across the Air Force, we are now turning our attention to cultivate initiatives that show significant promise of large returns-on-investment (ROI) or have Air Force-wide application. In the future, the Air Force Community Partnership program will continue to strengthen its foundation by building upon concepts under development while reallocating resources towards initiatives with large returns on investment.

Of course, we need your help to pursue the initiative, which has, by far, the largest return-on-investment—Base Realignment and Closure.

BASE REALIGNMENT AND CLOSURE (BRAC)

The Air Force has more infrastructure capacity than our missions of today and tomorrow require. Our numbers of aircraft and personnel have drawn down significantly since the Cold War. Since the last round of BRAC in 2005, we have continued to drawdown our forces, but we have not paired these drawdowns with comparable reductions in our infrastructure. Since BRAC 2005, the Air Force has thousands fewer personnel and hundreds fewer aircraft in our planned force structure, yet we have not closed a single installation in the United States. Ultimately, we are paying to retain more installations than we require, and that money could be used to recapitalize and sustain our weapons systems, on readiness training, and on investing in airmen quality of life programs.

Congress has expressed concerns that BRAC may cost too much, is often hard on communities, and may not adequately consider potential future growth of our forces.

Regarding cost, Air Force experience shows that BRAC provides significant savings. BRAC pays for itself. In each prior round of BRAC, including BRAC 2005, the Air Force achieved net savings during the implementation period. Couple that with the plain truth that the Air Force simply cannot afford to maintain our current infrastructure footprint, and our request for BRAC makes fundamental economic sense. The Air Force has a $20 billion facility investment backlog. We estimate (parametrically) that we currently have about 30 percent excess infrastructure capacity when measured against our fiscal year 2019 force structure. Sustaining and maintaining this extra infrastructure further strains our limited funds by forcing us to spread them even thinner to support infrastructure that we simply do not need. Without previous rounds of BRAC, the Air Force infrastructure bill would be about $3 billion higher each year than it is now. BRAC has been effective in reducing our infrastructure cost and we need another round to truly align our infrastructure to our force structure. We acknowledge there will be upfront costs, but those costs are the down payment to significant savings in the future.

Regarding BRAC's impact on communities, we understand that Air Force installations are key components of their communities. These communities house not only our missions but also our families; our kids go to the local schools; our airmen attend the local sporting events; our families volunteer across the spectrum of activities—these communities are our neighbors. With that in mind, the Association of Defense Communities asked our neighbors what they thought about BRAC, and 92 percent of community leaders [1] believe BRAC is better for their community than the status quo of hollowed bases, reduced manning and minimal investment. As BRAC is, by nature, a consolidation effort, some installations will be the recipients of new missions and these communities will benefit from the economic boost that increased installation activity will provide. Other installations will close; however, it is only under BRAC that communities whose bases are closing will receive direct economic support through redevelopment guidance and financial assistance. Based on prior rounds of BRAC, communities in which bases closed had lower unemployment rates and higher per capita income growth than national averages [2]. Additionally, the Air Force is committed to partnering with DOD, Congress, and communities to consider alternative approaches to the prolonged BRAC analysis and selection process that puts an economic drag on all communities surrounding military installations. In sum, without a BRAC, the Air Force will continue to spread out our people and force structure, and as this occurs many communities will continue to suffer the economic detriment of hollowed out bases without the economic support that BRAC legislation provides. This lose-lose scenario can only be reversed through BRAC.

Finally, Congress has expressed concerns that a BRAC will enable reductions in infrastructure that do not account for potential future force structure growth. In asking for the authority to permanently reduce our infrastructure footprint, the Air Force has considered both its needs for today and its needs for the future. The Air Force has no intent to close infrastructure that may support any realistically achievable surge or contingency needs of the future. While we estimate 30 percent excess infrastructure capacity, the Air Force would build specific reduction targets on future needs, and seek to reduce only infrastructure that exceeds future scenarios. BRAC would be driven first by a military value assessment grounded in operational needs, and would not compromise future growth in force structure. In comparing infrastructure capacity with force structure requirements going back to the 1990s, the Air Force has never dipped below 20 percent excess infrastructure capacity [3] despite numerous force structure changes and five previous rounds of BRAC. Thus, we believe we have the opportunity to significantly reduce excess capacity while ensuring more than adequate infrastructure to support any envisioned force structure. Further, we are certain that BRAC provides the most effective means for our infrastructure to achieve the right balance of effectiveness, efficiency, and support to AF missions.

CLIMATE CHANGE

The 2010 and 2014 Quadrennial Defense Reviews (QDRs) recognized that climate change will shape DOD's operating environment, roles, and missions, and that we will need to adjust to the impacts of climate change to our facilities, infrastructure and military capabilities. As part of a larger DOD effort, the Air Force recently col-

[1] From the June 2015 Association of Defense Communities National Summit at which General Session audience members were asked: "What would be worse for defense communities?" and chose from "Status Quo" or "BRAC".

[2] From Government Accountability Office (GAO) studies GAO–05–138 and GAO–13–436

[3] From DOD reports to Congress on BRAC and capacity in April 1998 and March 2004 in accordance with section 2912 of the Defense Base Closure and Realignment Act of 1990

lected data from over 1,500 sites regarding impacts from past severe weather events. Surveyed sites not only included major installations, but also radar/communications sites, housing annexes, training ranges, missile sites, etc. Sixty percent of all sites reported some impact due to past flooding, extreme temperatures, drought, wildfire, and wind. The single most prevalent factor was drought which accounted for 42 percent of all reported impacts, followed by non-storm surge flooding and wind with 19 percent each. Further, roughly a third of the 78 sites within 2 kilometers of the coast reported having experienced storm surge flooding.

There are several pertinent examples of how climate change is affecting our plans for current and future infrastructure operations. The Air Force recently completed a study on the risks of coastal erosion to remote Alaskan radar sites. Our radar stations are at risk due to rapid, significant coastal erosion because the shore ice that used to protect the coast from waves has melted. We continue to study the rate of erosion, mitigate impacts and incorporate considerations in future planning for these sites.

The DOD climate survey provided qualitative data that helped to frame a more holistic understanding of the impacts of climate on installations and operations. For the majority of reported severe weather events, bases reported emergency preparedness actions and procedures were successful in mitigating impacts on mission and personnel. That being said, mitigation becomes more difficult and cumulative impact to missions more crippling with increasing frequency and/or magnitude of severe weather events. The Air Force continues to integrate climate considerations into individual mission and installation planning efforts to produce informed and resiliency-focused decisions.

ENERGY

The Air Force is the largest single consumer of energy in the federal government. Air Force budgetary constraints have strained investments in right-sizing, modernizing, and maintaining power systems. As energy costs increase and budgets decrease, energy places greater pressure on the constrained Air Force budget. From a cost perspective, in fiscal year 2015, the Air Force spent approximately $8.4 billion on fuel and electricity, with more than 86 percent going towards aviation fuel. That $8.4 billion represented approximately eight percent of the total Air Force budget; only 10 years ago, less than four percent of the budget went towards energy expenses. As we refocus our efforts, the Air Force will take a multi-faceted energy investment approach to enhance mission assurance.

MISSION ASSURANCE THROUGH ENERGY ASSURANCE

The Air Force's ability to accomplish its mission—whether executing today's fight or training for future fights—is dependent on fuel and installation electricity. We must ensure reliable, resilient, cost-competitive power for our airmen to fly, fight and win. To do so, the Air Force has revectored its installation energy program from a largely conservation oriented stance to one of energy resilience through strategic agility in installation energy programs and projects. The guiding tenet for this strategic agility is "Mission Assurance Through Energy Assurance." This new paradigm focuses on providing the Air Force with the ability to complete its mission in light of disruptions to electricity and fuel, as well as optimizing its energy productivity through improvements in technology and process.

INSTALLATION ENERGY

Over the last several years, the Air Force has seen installations lose power for significant periods of time as a result of ice storms, hurricanes, fallen trees, and other forms of denial of service. So far, the Air Force has been able to mitigate the most critical mission impacts due to those power losses by exercising alternatives such as moving missions in the case of weather events. There are several critical missions, however, that cannot be moved and where even a microsecond interruption in power puts Air Force mission capabilities at risk. Even though the Air Force has reduced its energy intensity by more than 23 percent since fiscal year 2003, we still rely almost exclusively on expensive, non-networked diesel generators limited to very specific systems to provide the only depth of resiliency beyond that inherent in the electrical grid in our system. While that can be sufficient for short outages, today's grid is increasingly threatened by cyber incursions and physical attacks designed to disrupt power; increasing frequency and severity of natural disasters; and malfunctions from human error, aging equipment, and faulty infrastructure; all with the potential for long-term outages. To that end, we must enhance the energy resilience of Air Force installations through the adoption of innovative technologies and business models.

Going forward, the Air Force will transition to a more comprehensive approach to installation energy challenges, and it will holistically optimize cost and provide resilient, cleaner sources of energy by balancing the objectives of AF energy projects, including energy efficiency, renewable energy, energy resilience, and other energy projects. The core principles below will continue to characterize Air Force installation energy projects, but with an increased focus on meeting multiple objectives within single projects.

- Resilient: Every Air Force energy project should be designed through the lens of enhancing energy resilience; the strategic energy agility to maintain critical mission functions even during unexpected disruptions. Air Force missions require agile networks of platforms, communications equipment, satellites, and other technology and equipment. The Air Force will secure critical infrastructure and missions through a layered approach to energy resilience, taking advantage of rapidly evolving energy technologies to meet both home station and expeditionary needs. The Air Force will buttress commercial power with on-site electricity generation (preferably cleaner) paired with smart distribution networks and cyber-secure control systems, enabled to power critical infrastructure during grid disruptions.
- Cost-competitive: Air Force installations and commands should continue to "make every dollar count" when acquiring advanced, cleaner energy projects, while also examining trade-offs between lowest price and other priorities such as resilience. The Air Force will continue to pursue energy projects or transactions that will save money, leverage third-party investment, and prioritize resources to projects that also enhance energy resilience and reliability.
- Cleaner: Three global trends identified in America's Air Force: A Call to the Future (rapidly evolving technologies, decreasing availability of natural resources, and diverse operating environments) work in favor of energy modernization. Renewable and other distributed energy technologies are key components of energy agility and assurance, especially when projects are on site and capable of delivering continuous energy when the grid is disrupted.

RESILIENCE

To help achieve Air Force energy resiliency goals, the Secretary and the Chief of Staff of the Air Force established the Air Force Office of Energy Assurance (AF–OEA) to serve as a central management office dedicated to the development, implementation, and oversight of privately-financed, large-scale renewable and alternative energy projects. This office leverages partnerships with the Army's Office of Energy Initiatives and Navy's Renewable Energy Program Office to develop projects that contribute to strategic energy agility by identifying and awarding third-party financed energy projects that provide 10MW or greater and cleaner (but preferably renewable) power that increases energy resiliency. These projects will provide significant energy alternatives to assure Air Force missions in the event of grid outages for short or long periods. The Air Force is establishing this office with existing personnel resources and will not include any new headquarters personnel; rather, it will co-locate AF–OEA with the Army's Office of Energy Initiatives to share support and processes, and move forward as a team. The AF–OEA will proactively team with the Navy's Renewable Energy Program Office to optimize opportunities that office identifies.

Finally, AF–OEA is charged to take a holistic, enterprise-level approach to its energy assurance programs brought to bear on the Air Force's mission assurance through an energy assurance approach. This includes clean, cost-competitive, reliable and resilient energy through the application of utilities privatization, power purchase agreements, direct investment (e.g., energy conservation investment program), and third-party financed (e.g., ESPCs, etc.) authorities Congress has granted the Air Force. All available tools will be used.

COST COMPETITIVE

Although current and projected energy prices are relatively low, from a mission perspective, price volatility does not change mission vulnerability. With mission assurance as our focus, the Air Force still recognizes the need to reduce the cost of energy to allow our dollars to support readiness and recapitalization requirements. The Air Force directly invests in facility energy projects primarily using FSRM funding based on Air Force priorities. Based on an historical average, the Air Force anticipates approximately $223 million of its FSRM funding going towards projects with energy benefits such as increased resiliency and efficiency through modernized infrastructure.

While the Air Force has made considerable progress to avoid costs through reduced energy consumption, there is more to do. The Air Force is pursuing Energy Savings Performance Contracts (ESPC) and Utility Energy Service Contracts (UESC) to fund energy conservation projects. Since fiscal year 2012, the Air Force has awarded approximately $128 million across eight ESPCs and UESCs. In fiscal year 2016, the Air Force expects to award up to $359 million in such contracts. To take advantage of existing expertise, the Air Force has also partnered with the Defense Logistics Agency (DLA) and the U.S. Army Corps of Engineers (USACE) to expand its ability to identify and execute third-party performance contracts.

CLEAN ENERGY

The Air Force recognizes both clean energy, and its more desirable renewable subcomponent, are key elements to diversifying our energy portfolio to achieve strategic energy agility. By the end of fiscal year 2015, the Air Force had 311 renewable energy projects on 104 sites, either installed, in operation, or under construction, across a wide variety of renewable energy sources, including wind, solar, geothermal, and waste-to-energy projects. Cumulatively, the Air Force has 104.3 megawatts of on-base renewable energy capacity. These projects, which are typically owned and operated by private industry, have increased energy production on Air Force installations by more than 26 percent from fiscal year 2014 to fiscal year 2015. About eight percent of the Air Force's total electrical energy consumption in fiscal year 2015 came from a mixture of renewable on-base projects and purchased commercial renewable supply. Unfortunately, little of this energy can be directly consumed by our bases in the event of a grid outage. As we evaluate both direct investment and third party investment opportunities, the Air Force will exhibit preference for renewable solutions where cost effective, followed by clean but not renewable solutions, and ultimately by solutions that provide mission assurance through energy assurance without a clean element.

THE SWEET SPOT

Each of the principles above are spectrums, and the Air Force does not consider them "either-or" choices. The "sweet spot" projects will have elements of all three core principals, but not every project will demonstrate every characteristic. The Air Force will expect each project to demonstrate a clear connection to at least two principles. Projects that only achieve one principle will need strong mission justification. In short, energy projects should move toward the "sweet spot."

OPERATIONAL ENERGY

Similar to the installation energy program, mission assurance is the basis for the Air Force's operational energy program. Through behavioral and technological advancements, the Air Force is optimizing its capabilities in order to maximize combat readiness and reduce the mission risks posed by our fuel supply challenges. With more than 5,000 aircraft in the Air Force fleet, and a demand for over two billion gallons of jet fuel every year, improving how the aircraft and crew use their fuel can generate significant increases in capabilities. To address the risks posed by that demand, the Air Force has a goal to improve its fleet aviation energy efficiency, defined as productivity per gallon, by 10 percent by 2020. Since developing the goal in fiscal year 2011, the Air Force has improved its aviation energy efficiency by almost six percent through a combination of materiel solutions and changes to policies and processes.

The Air Force is requesting $682.6 million in operational energy related funding for fiscal year 2017. Included in this is $567.1 million to increase future warfighter capabilities, $4.5 million to reduce the logistical risks to the mission from energy, and $111.0 million to improve current mission effectiveness.

MATERIEL SOLUTIONS

The Air Force faces a challenge when implementing materiel solutions, as many of them require high upfront investments with long-term paybacks. However, those paybacks often provide significant returns in both fuel savings and reduced maintenance requirements. The Air Force is in the midst of a propulsion upgrade program for the KC–135 at a rate of 100 to 120 engines per year for the next 12 years, at a cost of approximately $106 million per year. While this is primarily a service-life extension effort, it provides a 1.5 percent reduction in its fuel consumption rate per engine. Additionally, by improving reliability and durability, these upgrades will provide lifetime fuel and maintenance savings approaching $3 billion.

SCIENCE AND TECHNOLOGY

Part of the Air Force's funding request for fiscal year 2017 is for research, development, test and evaluation (RDT&E) opportunities with operational energy benefits. One of the main operational energy related projects is developing new adaptive engine technology, which provides revolutionary advances in turbine engine performance. By incorporating these advanced technologies, the Air Force will be demonstrating a transformational engine that can operate with the power and performance needed for a combat aircraft, while maintaining the higher fuel efficiency of large aircraft. Based on the results of Air Force lab experimentation, this engine will provide 25 percent greater fuel efficiency, 30 percent greater range, 10 percent greater thrust, and improved thermal management compared to current engines.

MODELING AND SIMULATION

While the Air Force is enhancing its fleet through current and future materiel solutions, it is also looking to improve how it manages fuel usage for future conflicts. As part of the Joint Operational Energy Modeling and Simulation (JOEMS) project, the Air Force is leading a collaborative effort to examine how technology upgrades impact operations in various scenarios through identification of fuel usage requirements and logistical fuel supply challenges. By incorporating energy considerations in wargames and other modeling and simulation efforts, the Air Force can better understand the role fuel and logistics can play in future operations. The way it manages and consumes fuel can be a catalyst towards a successful mission, and the Air Force is driving forward to ensure it maintains an energy advantage against potential adversaries.

PROCESS CHANGES

The Air Force is also actively fostering an energy-aware culture that empowers airmen to take a smart approach to energy to better complete their mission. Simple changes in how a pilot flies and trains can affect aircraft fuel consumption. Through the Energy Analysis Task Force (EATF), the Air Force studied how instructor pilots and simulator instructors at Vance AFB in Oklahoma could incorporate fuel efficiency concepts into pilot training to ensure new pilots understand how to optimize fuel use. As part of a year-long trial, the EATF developed four training techniques to reduce fuel consumption in the T–1A Jayhawk, which were tested in T–1 simulators with a small group of students. The energy efficiency techniques explored for integration into the T–1 syllabus have the potential to save up to six percent in fuel requirements on navigation training sortie profiles. One of these techniques, called the Fuel Efficient Descent, involves teaching student pilots to select the optimal point to begin their descent into an airfield. When the students select the correct point to begin their descent, they are able to reduce engine power to idle and descend using minimum fuel. So far, the new technique has proven the potential to reduce fuel usage by 35 percent during the descent phase of flight.

While this effort saves fuel today, it goes much further by instilling an energy aware culture in those new pilots, which proliferates into the Air Force's major weapons systems and will potentially provide exponential savings. This type of savings can be seen in the process changes executed at Altus AFB in Oklahoma, which instituted scheduling and airspace utilization initiatives in 2013 that are providing over $60 million in cost savings on an annual basis.

ALTERNATIVE AVIATION FUEL

The Air Force is also committed to diversifying the types of energy and securing the quantities necessary to perform its missions, both for near-term benefits and long-term energy resiliency. The ability to use alternative fuels in its aircraft provides the Air Force with enhanced capabilities by increasing the types of fuels available for use. The entire Air Force fleet has been certified to use two alternative aviation fuel blends; one of these is generated from traditional sources of energy and the other one is generated from bio-based materials.

ENVIRONMENTAL STEWARDSHIP

While the Air Force strives to prevent or minimize environmental degradation from our training activities and operations, we recognize that sustaining the world's most capable Air, Space, and Cyber Force inevitably results in environmental impact. As a result, we view our responsibility to protect human health and the environment as an extraordinary duty. The Air Force is subject to the same environmental statutes and regulations as any other organization in the country and recognizes both its legal and inherent environmental responsibility. The Air Force Fiscal

Year 2017 PB request assures our programs comply with applicable regulatory requirements but, more significantly, in a manner that ensures the ready installations and resilient natural infrastructure necessary to support the Air Force mission now and in the future.

Environmental Program Funding Details

Within our environmental programs, the Air Force continues to prioritize resources to ensure our defense activities fully comply with legal obligations and our natural infrastructure remains resilient to support our mission and our communities; restore sites impacted by Air Force operations; and continuously improve. The fiscal year 2017 PB seeks a total of $842 million for environmental programs. This is $20 million less than last year due to sustained progress in cleaning up contaminated sites and efficiencies gained through centralized program management. By centrally managing our environmental programs we can continue to fund full compliance with all applicable laws, while applying every precious dollar to our highest priorities first. Further, our environmental programs are designed to provide environmental stewardship to ensure the continued availability of the natural infrastructure; the air, land and water necessary to provide ready installations and ensure military readiness.

Environmental Quality

The Air Force's Fiscal Year 2017 PB request seeks $422.6 million in Environmental Quality funding for environmental compliance, environmental conservation, and pollution prevention. With this request, the Air Force ensures a resilient natural infrastructure and funds compliance with environmental laws in order to remain a good steward of the environment. We have instituted a standardized and centralized requirements development process that prioritizes our environmental quality program in a manner that minimizes risk to airmen and surrounding communities, the mission and the natural infrastructure. This balanced approach ensures the Air Force has ready installations with the continued availability of the natural infrastructure it needs at its installations and ranges to train and operate today and into the future.

The environmental compliance program focuses on regulatory compliance for our air, water and land assets. Examples of compliance efforts include more detailed air quality assessments when analyzing environmental impacts from Air Force activities; protecting our groundwater by improving management of our underground and aboveground storage tanks; and properly disposing of wastes to avert contaminating our natural infrastructure.

Efforts in pollution prevention include recycling used oil, fluorescent lights and spent solvents, as well as sustaining our hazardous materials pharmacies to manage our hazardous materials so they don't turn into waste. We continue to make investments in minimizing waste and risk to airmen through demonstrating and validating new technology such as the robotic laser de-painting process on aircraft.

The Air Force remains committed to a robust environmental conservation program. Prior appropriations allowed the Air Force to invest in conservation activities on our training ranges, providing direct support to mission readiness. The conservation program in fiscal year 2017 builds on past efforts to continue habitat and species management for 96 threatened and endangered species on 45 Air Force installations. This year's budget request also provides for continued cooperation and collaboration with other agencies, like the U.S. Fish and Wildlife Service, to provide effective natural resources management and safeguard military lands from wildfire hazards through coordinated planning and incident response, and the application of prescribed burn techniques. The fiscal year 2017 budget will further the Air Force's implementation of tribal relations policy to ensure that the unique trust relationship the U.S. government shares with tribes continues, and to provide opportunities to communicate aspects of the Air Force's mission that may affect tribes.

As trustee for more than 9 million acres of land including forests, prairies, deserts, wetlands, and costal habitats, the Air Force is very aware of the important role natural resources plays in maintaining our mission capability. Sustained military readiness requires continued access to this natural infrastructure for the purposes of realistic training activities. The Air Force utilizes proactive ecosystem management principles and conservation partnerships with other federal and state agencies to minimize or eliminate impacts on the training mission. We are challenged by the fact that in many instances, our installations have become the last bastion of habitat for certain species due to the increased development outside the installation boundary. The fiscal year 2017 PB request includes $53.4 million to implement the Air Force's conservation strategy, which will ensure that all aspects of natural resources management are successfully integrated into the Air Force's mission.

The Air Force remains committed to good environmental stewardship, ensuring compliance with legal requirements, mitigating mission impacts, reducing risk to our natural infrastructure, and honing our environmental management practices to ensure the sustainable management of the resources we need to fly, fight, and win now and into the future.

Environmental Restoration

The Air Force Fiscal Year 2017 PB request seeks $419 million in Environmental Restoration funding for cleanup of current installations and those closed during previous BRAC rounds. Our focus has been on completing investigations and getting remedial actions in place, to reduce risk to human health and the environment in a prioritized manner. Ultimately, the Air Force seeks to make real property available for mission use at our active installations, and to facilitate community property transfers and reuse at our closed installations.

The Air Force has made progress over time in managing this complex program area, with more than 13,500 restoration sites at our active and closed installations (over 8,200 Active and almost 5,300 BRAC). The Air Force BRAC restoration program is on-track to achieve, at least, a "response complete status" at 90 percent of its Installation Restoration Program (IRP) sites at closed installations by the end of fiscal year 2018. Our active installation restoration sites are currently projected to achieve the same 90 percent response complete level by fiscal year 2020.

A new topic of focus is Emerging Contaminants (EC). ECs pose significant risk management challenges to the Air Force environmental program. Regulatory requests for environmental sampling and implementation of EC response actions are on the rise. Characterizing the extent of Air Force environmental releases of an emerging contaminant, assessing the potential risk and impact to human health and the environment, and initiating response actions and implementing appropriate mitigation measures, drive unforeseen, chemical- and site-specific environmental liabilities and program costs.

The Air Force response to releases of ECs from its facilities is a deliberate, science-based and data-driven process that is focused on protection of human health and the environment, conducted in accordance with the Defense Environmental Restoration Program, and consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The Air Force continues to work with regulators, city and state officials and other stakeholders to develop the best solution to an emerging problem. For example, for confirmed perfluorinated compounds (PFC) releases, the Air Force is determining the extent of contamination and taking steps to mitigate any validated human exposures with interim actions until cleanup standards and effective remedial technologies are available. When groundwater sampling results indicate PFC levels exceed the EPA's provisional health advisory for drinking water, the Air Force reduces PFC levels with filtration technologies or provides an alternate drinking water source. When PFCs are detectable, but below the provisional health advisory level, the Air Force may conduct well monitoring to track PFC level changes and determine if further action is needed.

While we cannot compromise on the protection of the public, our airmen and civilian workforce and their families, neither can we endlessly absorb the operational and financial risks of attempting to work with a myriad of unregulated contaminants without some level of certainty that the cost of controlling exposure will have a commensurate public health and operational benefit.

CONCLUSION

The Air Force made hard strategic choices during formulation of this budget request. The Air Force attempted to strike the delicate balance between a ready force for today with a modern force for tomorrow while also recovering from the impacts of sequestration and adjusting to budget reductions. Our fiscal year 2017 PB request increases funding in MILCON to support COCOM and new weapon system requirements, reduces Restoration and Modernization (R&M) and continues to address the current mission backlog of deferred infrastructure recapitalization from the fiscal year 2013 PB strategic pause. Sequestration will halt this recovery. We also must continue the dialogue on right-sizing our installations footprint for a smaller, more capable force that sets the proper course for enabling the Defense Strategy while addressing our most pressing national security issue—our fiscal environment.

In spite of fiscal challenges, we remain committed to our Service members and their families. Privatized housing at our stateside installations and continued investment in Government housing at overseas locations provide our families with modern homes that improve their quality of life now and into the future. We also

maintain our responsibility to provide dormitory campuses that support the needs of our unaccompanied Service members.

Finally, we continue to carefully scrutinize every dollar we spend. Our commitment to continued efficiencies, a properly sized force structure, and right-sized installations will enable us to ensure maximum returns on the Nation's investment in her airmen, who provide our trademark, highly valued airpower capabilities for the Joint team.

Senator AYOTTE. Thank you, Secretary Ballentine.

First of all, if you could give us an update on the recent agreement that was reached between the City of Portsmouth and the Air Force on the Haven well cleanup and also support in the community and how you think that is going to work going forward.

Ms. BALLENTINE. Yes. Thank you, ma'am. I appreciate the question.

The emerging contaminant of PFCs [perfluorinated chemicals] which is in Air Force firefighting foam or jet fuel firefighting foam is an emerging contaminant that we are managing all across the Nation. So we have been really pleased with the partnership that you and Senator Shaheen and your community have brought to really scrutinizing this issue and looking at ways to lean in to solving it.

So we are excited. Last week, we were able to sign the agreement with the city to move forward on the pilot phase of the Harrison and Smith wells, and we are looking forward. The next milestone is next month. So May. We are waiting for estimated completion of construction September of 2017. But the final design will be next month.

Senator AYOTTE. I really appreciate your working with the City of Portsmouth on this important issue because I want to make sure, obviously, my constituents have clean water and also continue your efforts that I know you have made to notify current and former members of the Air Force and civilians who have worked in that facility so that they are aware of their potential exposure to this chemical.

Ms. BALLENTINE. Yes, ma'am. Thank you for your support. It has been a great partnership.

Senator AYOTTE. I appreciate it. Thank you. I look forward to continuing to work on this so we can have clean water. Pretty important.

In line with the City of Portsmouth, since we are on the topic of the City of Portsmouth, I wanted to ask about—actually I am going to ask Secretary Hammack. On January 26th, I sent a letter to Lieutenant General Talley regarding the transfer of the Paul A. Doble Center to the City of Portsmouth. Can you provide me an update on that, what the timeline is for when the Army Reserve expects to complete the environmental reviews and then transfer ownership to the City of Portsmouth? What can we do to expedite that?

Ms. HAMMACK. Senator Ayotte, thank you for that question.

We are following the normal procedures for property transfer and one of those is consulting with the New Hampshire Division of Historic Resources——

Senator AYOTTE. Yes.

Ms. HAMMACK.—regarding the historic status of the facility. We expect to receive a determination that the property has historic re-

sources that must be preserved. This finding has lengthened the timeline for our disposing and transferring of the property. But even so, we are progressing with the environmental assessment.

Senator AYOTTE. So right now, actually you are waiting for the State Division of Historic Resources.

Ms. HAMMACK. Yes.

Senator AYOTTE. Okay. Got it.

Ms. HAMMACK. But if it comes in the timeline that we anticipate, we expect the transfer to take place by the end of this calendar year.

Senator AYOTTE. Okay. Excellent. Very good. Thank you for continuing to focus on this. I know it is important to the local community.

I also wanted to ask you, Secretary Ballentine, in January I learned about approximately 100 New Hampshire Air National Guard members who recently experienced unacceptable living conditions at Al Udeid Air Base in Qatar. I know this is not just my constituents who were impacted by this, but basically I get reports of black mold existing in showers, bathrooms, curtains, and some of my constituents talking about chunks of black mold and people getting sick and potentially having been caused by the mold.

So servicemembers have been told by my office that they attempt to clean their living quarters thoroughly but years of systematic neglect have put our airmen and other members who are supporting our airmen in a tough position there.

I brought this up to Mr. Carson in the February hearing, and I understand that local command is working hard to resolve this problem. But we cannot deploy our men and women in uniform and put them in situations that make them sick. So I would like an update on what the Air Force is doing to ensure our servicemembers, including our New Hampshire Air National Guard members, do not have to live in unhealthy and unacceptable conditions at Al Udeid Air Base in Qatar.

Ms. BALLENTINE. Thank you, ma'am.

You know, taking care of airmen is one of Secretary James' top three priorities. So when this came to her attention, she immediately directed two courses of action. One was for our Surgeon General to ensure that airmen, sailors, soldiers, marines, coalition partners who may have had exposure had proper health care afterwards. The second was to direct all those folks that are working on facilities to mitigate any mold issues on the base.

So let me give you a little bit of an update on both of those efforts. I am happy to provide a pretty extensive response for the record as well.

Senator AYOTTE. That would be terrific. I would appreciate it.

[The information referred to follows:]

Upon recently learning of this mold issue at Al Udeid, Qatar, Secretary James and General Welsh immediately requested more information from AFCENT and the Air Force Surgeon General. Taking care of airmen is one of our top priorities, including healthy, safe living environments.

The AF Surgeon General, Lt Gen Dr. Mark Ediger, is actively monitoring and evaluating potential health impacts associated with the conditions of our facilities at Al Udeid. He issued guidelines based on information from Centers for Disease Control and Institute of Medicine on medical care for airmen with health concerns associated with mold. All servicemembers rotating through Al Udeid are provided instructions on what to do to avoid mold or mildew growth, how to clean the room

if it is found, and who to call should mold or mildew become a recurring problem. We are monitoring the post-deployment health assessments of the 34 New Hampshire Air National Guard unit members who have documented mold exposures and none have required medical follow-up at this time.

We have improved our maintenance capabilities and accelerated repairs, recommissioning, and renovation efforts through increased quality control, pre-positioned bench stock, $1.3 million dollars of Secretary of the Air Force accelerated funding, and the prioritization of mold repairs. Along the maintenance line of effort, the implementation of our new custodial contract is already yielding great dividends to improve the conditions of 73 trailer latrines. Airman are actively conducting quality control assessments on 770 tasks per week and this has resulted in the new contractor performing at a 97 percent pass rate.

Great progress has been made repairing showers, faucets, urinals, and air conditioning units in bathrooms. We expedited $312,000 of high quality, US-sourced repair parts to the base which facilitated the completion of 103 work orders on latrine or shower facilities in the month of April alone. Two large bathroom facilities have been recommissioned and another recommissioning effort is underway. Our deployed engineers from the 379th and 1st Expeditionary Civil Engineering Squadrons are performing full-scale renovations of the ten worst large bathroom facilities. Their first renovation is near completion and included stripping the building down to its frame and replacing all plumbing fixtures, walls, and flooring.

Finally, we have two major facility replacement initiatives underway. The first is the completion of a long-term 20-unit housing facility construction project that includes integrated showers and latrines. This project is planned to complete on Sep 16. It will house up to 2,500 airmen, soldiers, sailors, marines and coalition partners and reduce our dependency on latrine and shower trailers. The second intuitive includes demolishing and replacing the 49 worst latrine trailers. Through the persistent efforts of our 379th Expeditionary Contracting Squadron, 12 trailers have been replaced since November 2015 and seven additional trailers are expected to arrive by July 2016.

Ms. BALLENTINE. Do you want a little update now or just take it for the record?

Senator AYOTTE. Yes, please. Why do you not give me an update and then you can give me an even greater detail for the record. That would be terrific.

Ms. BALLENTINE. All right. Sounds great.

So on the Surgeon General side, on the 7th of March, the Surgeon General issued a guidance on how to evaluate airmen for exposure to mold based on CDC [Center for Disease Control] standards, and CDC standards indicate that treatment for any kind of mold is the same.

534 guardsmen from a range of different States have been evaluated in the last couple of months after their deployment. 120 of those documented some exposure that they believe that they had been exposed to mold, and one airmen still needs his or her post-deployment follow-up. None of those airmen have required ongoing care for the exposure.

On the mold mitigation in the facilities, there are really two elements to it. One is in the latrines and one is in the living spaces, as you noted. Importantly, when we are in expeditionary environments, the facilities are designed for shorter lifetimes, and the facilities there have well exceeded their life. So a big part of the plan is replacing or moving folks into more permanent facilities.

So Secretary James had directed acceleration of $1.4 million of funding to accelerate the plan that the base had already had in place for the latrine facilities. On the living facilities, the dorms and lodging and the like, you are right. The folks living in the facilities are responsible for their cleaning. The commanders there have really stepped up their communication on two things: one, ensuring that folks know how to identify, clean and mitigate mold,

but more important, that they know how to elevate any concerns that they have that they cannot handle on their own.

So one of the things that I have been very pleased about is since the commander, Brigadier General James, has increased his communication on this effort—and he is communicating quite regularly with every member that is deployed there—we have seen a significant increase in work orders come in as people have learned how to communicate their concerns. Every single one of those work orders is treated as an emergency. You know, we send folks out within 24 hours. That is not new. We have done that. Really, we looked back at work orders over the last year. We were getting about, on average, 10 work orders a month for mold concerns. We saw a significant increase when the wing commander increased his communication telling folks how to do it. So that is good news, an increase in folks telling us that they have concerns.

The other good news is only about 10 percent of those work orders that have come in actually have turned out to be mold.

But anyway, I will give you much more detail for the record. I gave you more detail than I planned to.

Senator AYOTTE. No, no. I appreciate it. One of the interesting things for me is when I raised it with Mr. Carson, apparently this has been going on for a long time because it sort of opened up the flood gates to my office beyond our own Air Guard on it. That is why I wanted to raise it. I think it has impacted a lot of our men and women in uniform over the period that that base has been in operation.

Ms. BALLENTINE. Actually Brigadier General James, when he took command earlier last year, did note it as an issue and had actually started a mitigation plan that has kind of come into fruition in the last couple of months.

Senator AYOTTE. Well, I appreciate your answer and certainly look forward to any supplement you make on the record.

I have many other questions, but now I am going to turn it over to Senator Kaine.

Senator KAINE. Thank you, Madam Chair.

Just a couple of questions based upon testimony. Secretary Hammack, I would like to start with you. You gave a very good statistic. I want to make sure that we do not bury a lead here. Since 2003, the Army has reduced its energy consumption by 22 percent. I want to dig into that a little bit, then maybe ask the rest of you to share also in your own branches or DOD-wide what you are seeing.

Is that 22 percent reduction in the energy budget or is that actual in kind of unit of energy used the Army has reduced by 22 percent?

Ms. HAMMACK. Thank you for that question.

The 22 percent is a reduction in consumption. That is the actual amount of energy used.

It is interesting. There is another metric that we are measured by and that is energy use per square foot. That has not reduced as much because what we are doing is we are trying to consolidate people into under-utilized facilities. So when you have more people per square foot, then in that building your energy used per square foot goes up. We are also demo-ing some of our older under-uti-

lizing facilities, and if your square footage goes down, then your energy use per square foot metric also goes up. But overall consumption has gone down, and that is due to our team focusing on energy saving performance contracts while the private sector is doing the investment, and then we pay back out of the energy savings.

Senator KAINE. If I could hear from other branches if you are seeing an equivalent reduction in energy consumption. I think this is a very good news story. So Navy, Air Force, Marines, DOD-wide. Are we seeing similar trends?

Mr. MCGINN. We are, Senator. It is not just the reduction in energy consumption because of our energy efficiency measures that we are taking both ashore, as well as on our ships and airplanes, but it is also in a large measure substituting brown power with green power or renewable energy. I would like to provide you a more detailed response, and I will differentiate it from Navy and Marine Corps and shore and operational energy as well.

Senator KAINE. That would be very helpful.

[The information referred to follows:]

OPERATIONAL / EXPEDITIONARY ENERGY INPUT

U.S. Navy

The Navy is focused on optimizing energy use on our operational platforms to increase our range, endurance, and payload. We are making progress toward that goal.

Navy evaluated the trends in fuel consumption rates for several classes of ships during the period from 1992 to 2014, which included a period of significant variation in operational tempo. Reductions in daily consumption were observed across all evaluated classes, with an average reduction of 9.4 percent, or 63.4 barrels per day, which translates into more than 10 additional steaming days per year for each ship at the most recent average consumption rates.

Within classes of ships, we observed reductions across the Navy's fleet of *Arleigh Burke*-class destroyers (DDGs) and *Whidbey Island* and *Harpers Ferry*-class amphibious ships (LSDs), which on average were consuming 9.8 percent and 6.5 percent less fuel per day, respectively. This translates to about 11 additional steaming days per year for each DDG, and 7 additional days per year for each LSD. During the same period, employment rates of these ships also increased, with each DDG underway for about 8 additional days per year on average, and each LSD underway for an additional 11 days.

These reductions in fuel consumption demonstrate how the combination of operational practices and fuel-saving upgrades, such as stern flaps, are yielding real-world benefits that translate into operational gains for our ships through extended reach, and further fuel cost savings for the Navy. Additional efforts, such as the installation of LED lighting across the fleet, and the incorporation of hybrid-electric drive (HED) systems aboard DDGs, will build on those gains and further enhance operational capability.

Navy also continues to identify and validate energy saving initiatives for legacy and new aircraft through efforts like the Aviation Energy Conservation Research and Development Program. The program is working on advanced flight management system capabilities such as optimized launch & recovery profiles which the Navy expects to reduce fuel consumption by as much as 10 percent, extending available aircraft range and flight time.

U.S. Marine Corps

The Marine Corps' operational energy goals are expanding the warfighting capability of the Marine Air-Ground Task Force (MAGTF) and increasing the training readiness of units. The Marine Corps views operational energy as an enabler of combat power; we strive to manage Operational Energy in the most effective manner to maximize capability.

Since the early 1990s, increases in information technology, platform maneuverability, and force protection capabilities have greatly increased the Marine Corps' capabilities, but these capability increases comes with corresponding increases in energy consumption. Analysis indicates the energy requirement for the Marine Ex-

peditionary Brigade (MEB) is approximately 29 percent higher today than in the mid-1990s and is estimated to be 45 percent higher by 2024.

The Marine Corps understands the risks associated with increases in energy requirements and is undertaking mitigation efforts. These efforts are led by the Marine Corps Expeditionary Energy Office (E2O). For example, efforts aligned with ground assets will result in a projected 9 percent increase in efficiency of the MEB—putting downward pressure on the trend of increasing fuel and battery requirements for the MAGTF. E2O continues to work closely with Marine Corps units and agencies, as well as other services, industry, and academia, to identify and mitigate energy related risk to Marine Corps warfighting capabilities to maintain the warfighting advantage for our current and future force.

SHORE ENERGY INPUT

Department of the Navy (DON) shore installations are critical to generating force structure, and play an increasingly important role in supporting front line operations. DON is increasing energy efficiency and resiliency across the U.S. Navy (USN) and United States Marine Corps (USMC) shore enterprise.

DON initiatives focus on optimizing energy use—or making the most of every gallon of fuel and kilowatt hour of power—as well as growing the utilization of renewable energy assets in order to decrease dependency on the commercial grid. DON has made significant progress, reducing energy intensity by 22 percent since 2003.

Over the last four years, DON has made significant investment in both appropriated and third party-financed projects. Return on many of these investments is expected to begin in 2016, as projects reach completion. DON's overall Energy Saving Performance Contract (ESPC)/Utility Energy Savings Contract (UESC) pipeline has over $1.4 billion in planning, acquisition and execution with over $150 million already awarded this fiscal year.

DON is pioneering base-wide ESPC projects at a number of installations. This approach looks beyond typical lighting and HVAC energy conservation measures, to identify all possible efficiency opportunities available in areas such as buildings, distribution systems and industrial equipment.

DON has made great strides in developing renewable energy resources, with over 650 MW of capacity from projects that are operational, under construction, or awarded, and an additional 350 MW in procurement. With continued reductions in energy consumption, we estimate that half of DON's facility energy consumption will be procured or produced from renewable sources by 2020.

DON also worked to modernize the non-tactical vehicle fleet, reducing greenhouse gas emission by 32 percent.

Service specific information includes:

United States Navy

The USN has reduced its facilities energy consumption by 23 percent and energy intensity by 21.5 percent since 2003. Navy is also on track to meet its consumption reduction goal by 2020, as well as energy intensity reduction targets.

In addition to reducing energy consumption and intensity, Navy's Shore Energy Program focuses on improving energy security and energy resilience. To this end, Navy has focused on increasing renewable energy production. Currently the Navy produces or procures 33 percent of its total shore electricity requirement from renewable energy sources.

United States Marine Corps

USMC has reduced facility energy intensity by 20 percent since 2003. USMC intends to assess all installations to determine the economic viability of utilizing third-party financing mechanisms to identify, evaluate, and finance infrastructure upgrades and new equipment that will improve energy efficiency.

USMC has significantly increase the amount of renewable energy consumed by its facilities, exceeding the 7.5 percent goal set forth in the Energy Policy Act of 2005 by over 2 percent. USMC has over 128 MW currently in procurement, and continues to identify financially opportunities to reduce energy consumption from brown power sources.

DON wide

While counterintuitive the DON aggregate is 22 percent. The overall DON metric benefits from a reduction in the energy consumption (numerator) primarily driven by Navy's reduction of ¯20 percent, as well as an increase in the KSF (denominator) primarily driven by USMC's increase in square footage of ¯20 percent. Even though USMC isn't very large proportionally, their energy intensity is enough to push that

combined DON number to look slightly higher than either Navy or USMC individually. Please see detailed breakdown below:

Navy FY15: 38,290,000 MBTU / 358,997 KSF = 106.6
Navy Baseline: 47,659,000 MBTU / 350,685 KSF = 135.9
Navy Progress: -21.5%

MC FY15: 10,442,000 MBTU / 133,080 KSF = 78.46
MC Baseline: 10,649,400 MBTU / 108,374 KSF = 98.27
MC Progress: -20.2%

DON FY15: (38,290,000 + 10,442,000) / (358,997 + 133,080) = 48,732,000 / 492,077 = 99.03
DON Baseline: (47,659,000 + 10,649,400) / (350,685 + 108,374) = 58,308,400 / 459,059 = 127.02
DON Progress: -22.0%

Senator KAINE. Secretary Ballentine?

Ms. BALLENTINE. So for installation energy, the Air Force has improved both our energy intensity and reduced absolute energy by about 23–24 percent since the 2003 baseline. Unfortunately, costs have gone up significantly during this time. So the overall energy budget has not necessarily gone down. We have avoided many, many millions of dollars thankfully.

Senator KAINE. Mr. Potochney?

Mr. POTOCHNEY. Senator, my figures are overall for facility energy, it is down 10 percent, and that is translated into a cost avoidance of $1.2 billion. So I think that is pretty substantial.

Senator KAINE. We are now seeing per-unit costs dramatically decline in the last couple years. That was not the case necessarily during that 2003 to today, but if you are seeing reductions in energy consumption by 10 percent in facilities or 22 percent Army-wide and then the other statistics and you are seeing a reduction in per-unit costs of energy, I mean, this is a big success story and we need to recognize you for what you do and encourage other agencies to do more of it.

Mr. MCGINN. Senator, if I could.

Senator KAINE. Yes, please.

Mr. MCGINN. I would just like to make the point that a lot of times we tend to talk about technology, the technology of energy efficiency or renewable energy. That certainly is a key part. But I think across the whole DOD, certainly in the Department of the Navy, we are seeing a tremendous benefit from partnerships with other services, with DOE [Department of Energy], and in our case with biofuels with the Department of Agriculture. We are also seeing a great change in culture, and the culture is going to be sustaining. From seaman to admiral, from lance corporal to general, we are seeing great changes in how we understand the value of energy, both in garrison as well as in the field.

Senator KAINE. You talk about third-party contracts as part of the reason for this, and I just want to make sure I understand what you are talking about now. When I was mayor, we entered into contracts where we asked third parties to install energy efficiency equipment on city buildings and schools. They did the capital investment. We contracted for the service, not for the equipment. But then we had a baseline and then we shared the reduction in energy cost with them. So it takes some creativity on the acquisition side to switch from a "buy the equipment" to "enter into

a service contract and then share the energy reduction savings." Is that the kind of third-party contract that you are talking about?

Mr. MCGINN. That is very similar. We have an energy savings performance contract mechanism that is very, very effective at doing, in principle, the same thing as you did when you were mayor. We really have done it for a number of years, but we are really accelerating it over the past 3 or 4.

Senator KAINE. Because it is a different way than buying the equipment. You get better and better at actually doing the service contracts once you have the experience.

I want to ask Secretary Ballentine on the BRAC issue. Again, the need to reduce spending on excess infrastructure I really think we need to do that. I am just trying to grapple with what is the right way to do it. You said the Air Force suspects that you have got about 30 percent excess infrastructure. How does the Air Force come up with that number?

Ms. BALLENTINE. We use the same parametric capacity analysis that we used early in the 2004 and in the prior BRAC rounds.

Senator KAINE. The 2005 round?

Ms. BALLENTINE. Yes, the 2005 round. The 2004 analysis for the 2005 round.

Senator KAINE. Since I was not here then—I was actually a lieutenant governor working on a BRAC commission for my State back then.

I do not mean to get into all the details, but I mean, how does the Air Force approach it and come to that conclusion that there is a 30 percent excess?

Ms. BALLENTINE. So we look at force structure. We have looked at several different types of force structure. I think Senator Ayotte's concerns about optimizing infrastructure to today's force structure if today's force structure is not optimal to the need is an important concern. So we looked at force structure a range of different ways, which is why I say about 30 percent excess capacity because depending on which force structure we look at, it ranges from 27–28 percent all the way up to 34–35 percent.

For the Air Force the infrastructure that is most important that we look at is infrastructure that supports our aircraft. So we look at ramp space, hangar space, maintenance space. We do look at some facility space such as classroom space and the like, but really most of our analysis is on infrastructure that supports our aircraft. I can provide all nine categories for you for the record and specifically the details on how we do the parametric analysis.

Senator KAINE. Excellent. We will ask that question of all the branches. I think that would be helpful.

[The information referred to follows:]

Ms. BALLENTINE. The Air Force used nine category metrics in conducting its parametric excess infrastructure capacity analysis, consistent with Air Force category metrics used to justify previous rounds of BRAC. The category metrics are as follows: large aircraft parking apron; small aircraft parking apron; Air Force Reserve parking apron; Air National Guard parking apron; education and training parking apron; education and training classroom space; depot level maintenance; space operations; and product centers, labs, and test & evaluation installations. For each metric, a baseload ratio, for example number of aircraft to parking apron square yardage, is calculated and compared to a 1989 baseline ratio. Decreases in baseloads indicate that force structure drawdowns have outpaced reductions in infrastructure and that excess infrastructure capacity exists.

Ms. HAMMACK. The Army used nine categories of installations to develop its parametric capacity analysis. It analyzed the infrastructure for a force structure comprising a Total Army of 980,000 by the end of fiscal year 2019 (450,000 Active Component, 335,000 Army National Guard, and 195,000 Army Reserve). Each installation category had a metric for infrastructure divided by a metric of force structure to develop a ratio of infrastructure-to-force structure. That ratio was then compared to a historical baseline (the year 1989) to measure the amount of increase in that ratio over time. The overall excess capacity for the Army was measured at 30 percent using the parametric capacity analysis.

Administrative Installations: Base loading of approximately 97 square feet of infrastructure per person, which represents a 29 percent increase in excess capacity in comparison to 1989. Seven installations made up the category.

Depots: Base loading of approximately 27 percent more single-shift capacity than available funding/utilization. However, this category shows no net increase in excess capacity in comparison to 1989. Five installations made up the category.

Other Organic Industrial Base: Base loading of approximately 30 percent more single-shift capacity than available funding/utilization. However, this category shows no net increase in excess capacity in comparison to 1989. Five installations made up the category.

Arsenals/Industrial Manufacturing: Base loading of approximately 2,258 square feet of facilities per person, which represents a 36 percent increase in excess capacity in comparison to 1989. Three installations made up the category.

Major Training—Active: Base loading of approximately 7,949 acres per maneuver battalion equivalent of force structure, which represents a two percent increase in excess capacity to 1989. Four installations made up the category.

Major Training—Reserve. Base loading of approximately 1.71 acres per U.S. Army Reserve Soldier, which represents a 53 percent increase in excess capacity in comparison to 1989. Five installations made up the category.

Maneuver: Base loading of approximately 40,405 acres per maneuver battalion equivalent of force structure, which represents a 42 percent increase in excess capacity in comparison to 1989. Twelve installations made up the category.

Schools: Base loading of approximately 72 square feet of instructional space per solider/student, which represents a 44 percent increase in excess capacity in comparison to 1989. Thirteen installations made up the category.

Research, Development, Test, and Evaluation/Labs: Base loading of approximately 879 square feet per person, which represents a 46 percent increase in excess capacity in comparison to 1989. Ten installations made up the category.

Mr. MCGINN. For the capacity analysis based on fiscal year 2019 force structure, the Department of the Navy (DON) used 12 infrastructure categories to determine potential excess/deficit capacity. Categories include: Naval Bases, Marine Corps Bases, Air Stations, Ordnance Stations, Supply Installations, Aviation Maintenance, Maintenance Depots (USMC), Shipyards, Research Development Testing and Evaluation (RDT&E) Labs, Training Air Stations, Training (Pipeline), and Training (Degree-granting).

The parametric analysis methodology was used to identify potential excess/deficit percentage for each category and an aggregate DON excess/deficit capacity. For each category, capacity and loading information came from authoritative sources such as the internet Naval Facilities Assets Datastore (iNFADS), which provides the real property inventory for the DON, and the Navy Aircraft Program Data File (APDF), which provides the number and types of aircraft. Ratios of capacity to loading were calculated, with the resulting ratio compared to the 1989 ratio to determine the proportional excess/deficit in 2019. The resulting estimate of 2019 excess/deficit percentage is an aggregate value and cannot be used to imply an excess/deficit for a given installation.

To determine the aggregate DON capacity, each category was assigned a relative weight. Installations were mapped to categories, and each category weighted by the percent of installations in the category relative to the total number of installations.

For infrastructure categories that show a shortfall, the shortfall percentage is reported as "0" in the aggregate calculation. As a result, excess in one category is not offset by shortfalls in another category.

Mr. POTOCHNEY. I have nothing more to add than what my co-panelists provided and concur with their answers.

Mr. Potochney, you have a follow-up, and then I will turn it over to Senator Ernst.

Mr. POTOCHNEY. To follow up, Senator, our analysis—it is a parametric analysis, as Secretary Ballentine said. Basically what it

is it is a base loading analysis. If in 1989 we were able to accommodate, say, for instance, three ships—or let us make the math easy—four ships per 1,000 feet of pier space and now we only have three ships to fill up that 1,000 feet, we have a 25 percent delta in excess. That is how we do our excess capacity analysis at the beginning end of BRAC. Its only purpose is to illustrate there is enough out there to justify you all authorizing us to do an actual BRAC analysis. It is not a BRAC analysis.

Senator KAINE. I hope that we might have a full committee discussion sometime about the best way to rationalize excess infrastructure because my sense is your expertise in branches or division-wide coming up with an assessment of the excess infrastructure suggests you also have an expertise to make recommendations to us. Again, we are going to approve some and not approve some. I just believe, having lived at the other end of BRAC as a mayor and governor, that that would be a better process than the process in the past.

I know there have been critiques of the 2005 BRAC because it did not really save money, but I understand some of that was the BRAC was not just about excess infrastructure. It was also about joint and transformation of mission, *et cetera.* But even if we said, okay, there is a way to save money, there is way to rationalize excess infrastructure, I am not sure the BRAC process does it the right way. But you make a compelling case that we should not be spending money on excess infrastructure.

Ms. HAMMACK. Absolutely. BRAC 2005 is saving the Army $1 billion a year and cumulatively the prior BRAC rounds are saving us another $1 billion a year. So BRAC is a proven process to save money. If you look at the GAO [Government Accountability Office] report, the GAO report recognized that BRAC 2005 did save money.

Senator KAINE [presiding]. Senator Ernst?

Senator ERNST. Thank you, Ranking Member Kaine, and thank you to our witnesses for today. We appreciate you taking the time to be here.

Secretary Potochney, I will start with you but I would love input if the others would like to jump in as well.

I am a strong supporter of SOCOM's [Special Operations Command] Preservation of the Force and Family, a very important program, and their initiatives. I am glad to see that SOCOM has done so much to support our special operations families and our wounded warriors through this program.

I have a dear friend who is part of that family. He is an injured special operator at Fort Bragg. Earlier this year, I did have the opportunity and the honor to visit him at Fort Bragg and go through some of his recovery process as well and also visit a number of the operators that are not part of that wounded warrior program but they are very important to us as well.

Now, at Fort Bragg, they do have what is called the tactical human optimization, rapid rehabilitation, and reconditioning facilities. This is otherwise known as THOR III. I see that you are familiar with that. I had the opportunity to visit and loved the facilities and their very reason for being, which is to not only assist our special operators as they are training for the missions, but also in

assisting their members, their wounded warriors that come back, and assisting them to getting back to their potential, hopefully their full potential. I hope that we can enhance and expand these facilities for our operators and again just want to make sure that we are returning them to the fight. We invest a lot of time and energy and money in these operators. They are a great part of our war on terror, as well as many other missions. So we want to support them however we can.

Sir, can you briefly describe the importance of THOR III to our special operations soldiers and what more can we as Congress do to support THOR III and this program, particularly with MILCON and other initiatives under the preservation of the force and families program? Can you talk a little bit about that and its importance?

Mr. POTOCHNEY. Yes, ma'am.

We do support it. In fact, from what I can see, it is expanding, and people do recognize its validity and its value. We have got a series of projects in the works to enhance it. There was some reporting requirements we had levied on us from the appropriators, as I understand it, and we worked through those, also as I understand it. So we are firmly behind it.

Senator ERNST. Any other thoughts from our panelists on that particular issue?

[No response.]

Senator ERNST. I just want to reinforce again—and I have brought this up in different types of subcommittees and the committee as well as the full committee, just emphasizing how important I believe this is because our special operators do take on different types of missions maybe than a transporter like myself would have done in the Iraqi War. So understanding the importance it is to our families, to our wounded warriors, and those special operators, I would like to encourage you to continue working with that program, hopefully expanding those facilities. It is very, very important to us.

Mr. POTOCHNEY. Yes, ma'am.

Senator ERNST. Thank you. That is all I have for today. Thank you.

Senator KAINE. Thank you, Senator.

Senator McCaskill?

Senator MCCASKILL. Thank you.

Secretary Hammack, I know that you recently visited Fort Leonard Wood, and one of the things that has cost our military a lot of money that frankly a lot was wasted is the support of contingency operations. If you look at the not-so-pretty history of the LOGCAP [Logistics Civil Augmentation Program] contracts, it does not take much work to figure out that we sure overpaid for a lot of contingency support as it related to particularly the early era of LOGCAP in Iraq. I spent a lot of time on that.

So I think it is pretty important that we have CBITEC [Contingency Basing Integration and Technology Evaluation Center]. I know you visited it at Fort Leonard Wood. If you would share with the committee what you think about this effort to help us make smarter, more efficient, effective decisions around contingency support, whether it is water, waste, housing, security protection. If you

could speak to that, I think it would be important to get that on the record.

Ms. HAMMACK. Thank you, Senator.

CBITEC is a great opportunity for us to take technologies, whether they are commercial, off-the-shelf technologies or developing technologies, and run them through a test in a camp that soldiers live and use every day, yet in an environment where if something goes wrong, we can fix it.

The challenge, especially in the early years of Iraq and Afghanistan, is we sent some equipment over there that had not been thoroughly tested, we did not understand completely how to operate, nor how to maintain it. A lot of our servicemembers said do not use us as guinea pigs. CBITEC was stood up. So was the base camp integration lab in Fort Devens, Massachusetts.

With those two base camps, one tests solutions for very medium to large base camps. A B-cell does the small base camps. But we are able to test force protection. We are able to test technologies that are water savings technologies such as water from air, which we might call a supersized dehumidifier. But the fact is if you do not have to drill a well, then your force becomes more expeditionary and there is less strain on the environment in which you are setting up base camp.

But we are also able to test energy efficiency technologies to try and reduce the number of convoys that are crossing the roads and to reduce the risk and vulnerability to our servicemembers. So we have seen great technologies and solutions come out of that lab. We have also seen some solutions that were tested there that were not ready for prime time, and I think that is the right kind of environment to do that testing in.

Senator MCCASKILL. Which, of course, saves us money. When we figure out something is not ready for prime time, then we do not chase bad money after good.

So I am confused as to why this thing appears to be headed towards an end because we have got—surprise, surprise—people fighting over who is supposed to be paying for it. I know this is shocking within the armed services that people are fighting over who should pay for it.

Can you help this committee navigate through this? It would be a shame for us to lose this capability because one branch says not us and the other branch says not us, and therefore, it is my understanding, the funding is going to shut down this year.

Ms. HAMMACK. That is true. Just due to sequestration, we have limited funding for everything. So we have limited funding to spend on maintaining our facilities. We are trying to focus our funding on manning, training, and equipping our soldiers. When it comes to some of the research, testing, and support for installations——

Senator MCCASKILL. We are manning, equipping, and protecting our soldiers. We know that. We are not talking about testing for something that is not directly relevant to doing what we are asking our soldiers to do.

Ms. HAMMACK. I agree with you. We have asked CBITEC to put together what it will cost to continue to maintain it through the end of this calendar year. TRADOC [U.S. Army Training and Doc-

trine Command] is doing that now, and I expect to have that information by the end of the month.

Senator MCCASKILL. Well, I am interested in this, and I think sometimes—I know that you all are doing your best to try to figure out how to operate in this environment, although I see the OCO [overseas contingency operations funding] relief wagon coming up over the horizon in this appropriations process. I can assure you I think this Congress is getting ready to do what I think is irresponsible and that is to push everything into OCO instead living up to our responsibility of putting it in the budget and being transparent and accountable to the American people for that.

But I am very interested in figuring out really how much money are we talking about and are we cutting off our nose to spite our face if we let this important capability go by the wayside. I particularly would be interested in knowing what we have learned there has, in fact, saved us money because I guarantee you there is a list, probably fairly long, of what we have learned there that has saved us money. So I would appreciate a follow-up of that.

[The information referred to follows:]

CBITEC provides a realistic training base camp for soldiers, as well as a venue in which to demonstrate and assess new technologies and techniques that will improve energy efficiency, equipment readiness, and mission capability at future contingency bases. To date, CBITEC has demonstrated a suite of life-support equipment with the potential to reduce future contingency base fuel use by 50 percent.

While CBITEC provides an excellent capability to support soldier training and doctrine development, the Army does have other facilities in which to train. In an era of constrained resources, the Army must make difficult choices to prioritize spending to maximize the generation of readiness and the welfare of our soldiers.

Army Training and Doctrine Command (TRADOC) evaluated and prioritized 67 unfunded requirements, of which CBITEC was one, for mid-year reprogramming. TRADOC was unable to secure funding for the CBITEC. The Maneuver Support Center of Excellence provided $40,000 in the interim for limited operations (fuel, waste water), to continue supporting initial military training classes. CBITEC's facilities began limited operations on May 1, 2016, and will close on July 1, 2016 and transfer to range control. The two term employees will be released at the expiration of their term in August 2016.

In the absence of the CBITEC, the Army conducts field tests and evaluations on contingency basing technologies at other locations, including the Base Camp Integration Laboratory (BCIL) at Fort Devens, MA, and the Army Warfighting Assessments at Ft. Bliss, TX. Additionally, individual technologies that support base camp operations are developed and evaluated at Army laboratories.

Just briefly for Mr. McGinn, you know, we are trying to make sure that we are ready for women in our facilities. I just referenced Fort Leonard Wood. They have been duly training our soldiers there, both men and women, for a long time, and so their facilities are capable in that regard. Could you briefly give us your assessment of how prepared are our marine training facilities to accommodate what we believe will continue to be an increased number of women in the marines?

Mr. MCGINN. I know that the marines are moving out smartly in making adjustments to their whole training and operating pipeline to support women marines as their roles and missions have expanded. I will be happy to take a question for the record to provide you a more comprehensive answer for both the Marine Corps and, to the extent that you are interested, women in the Navy as well, although that is a more stable situation than the expansion of roles and occupations for women marines.

Senator MCCASKILL. Both would be great, but I am particularly interested in the marine setting because it is such an expansion. I know that has not exactly been the smoothest of roads, so to speak. I am anxious to know how all that is going.

[The information referred to follows:]

All Navy commands and activities, with the exception of Naval Special Warfare Command, already train men and women in a fully integrated training setting.

The Naval Special Warfare Center (NAVSPECWARCEN) and the Naval Special Warfare (NSW) Women in Service Review team have identified all known supply and facility requirements for integration and are executing their plan to ensure all candidates are equipped and outfitted for optimal training. NAVSPECWARCEN reviewed all training and berthing sites and created a barracks instruction that addresses standards, policy, and procedures for student's use of berthing and restrooms. Restroom modification projects throughout NSW training facilities are currently underway and are expected to be completed prior to arrival of the first female students.

MCICOM reviewed facility requirements and identified the facility projects necessary to accommodate the integration of women in the force. The attachment shows the total facility change costs to date and the work remaining. Approximately $977k of work has been completed as of 15 May 2016 (the majority of projects by number). There are nine projects remaining for training facilities, with an estimated cost total of $1.53 million. These remaining projects are in various stages from planning through construction, and are estimated to be fully complete in fiscal year 2018. The list of projects is provided in the attached table.

Mr. MCGINN. Great.

Senator MCCASKILL. Thank you. Thank you all.

Senator AYOTTE [presiding]. Thank you all.

Secretary McGinn, I wanted to ask about the Navy's request for $6.1 million for a microgrid project in California. According to the documents, it says it will support nonessential functions. Yet, I know that there are significant unfunded priorities. Just to use one example, the Marine Corps requirement for F–35 stationing in Miramar. I am sure there are many other examples that I could pull out. So could you help me understand why we are requesting this and why you think given all of the, really, reduction in funding we have talked about here and all the concerns we have, that this is a priority?

Mr. MCGINN. I will be happy to investigate that. I do not have an answer, but I will find one for you, Senator. It may be a matter of just words describing this microgrid as for nonessential purposes. I assure you we are not doing anything for nonessential things. It may be just a definition or use of terms that is technical. But we will find out the specific project and provide you a full background on its rationale.

Senator AYOTTE. I appreciate it because when you can imagine when I read "nonessential," how that kind of makes me wonder. So if you would get me more details on that, I would really appreciate it.

[The information referred to follows:]

Naval Medical Center San Diego services nearly 100,000 enrolled beneficiaries. The installation requires the energy security to provide full mission support capability with increased continuity of operations, especially during unplanned disasters.

The Navy's P624, $6.1 million "Energy Security Hospital Microgrid" in San Diego, California (Balboa Hospital) will increase the Naval Hospital energy security posture and afford improved efficiencies and load shedding through improved metering, controls and distribution improvements. The Navy will use this project to validate concepts that will be applied on future projects.

This project improves the electrical distribution and control infrastructure to increase the capability and usefulness of the existing 10.4MW co-generation plant.

The project will ensure the entire hospital complex has reliable power during extended San Diego Gas & Electric grid outages and mitigate impacts of unplanned outages. Since 2011, four unplanned outages occurred, which impacted hospital facilities, emergency response, and family care centers, with some of the outages taking almost half a day to restore to full service. The restoration of power for the affected facilities could have been significantly quicker with microgrid capability to support the installation mission, take care of patients, families and staff. Additionally, this project will install metering and controls to improve energy monitoring and control capability.

The project would:

- create a campus-wide microgrid at Balboa Complex that is capable of providing reliable power to critical emergency services infrastructure;
- provide faster restoration of service in case of an unplanned outage or natural disaster;
- integrate additional power sources which will provide power to other essential facilities at the Medical Center (this shall increase energy resilience and security);
- increase the efficient use of the existing turbine and other generation assets during island mode;
- integrate the cogeneration plant with all Balboa facilities and to a future Facility and Energy Operation Center (FEOC).

The planned dates are: construction award: 2/2017, construction start: 7/2017, and construction completion: 8/2018.

Mr. MCGINN. I really appreciate that and I am glad I never read "nonessential" in any of my fitness reports.

[Laughter.]

Senator AYOTTE. We all hope not to read that in any of our reports. Thank you.

Secretary Hammack, in your written testimony, you noted that the Army recently conducted a test and a temporary disconnect that was also referenced, I believe, by Senator Kaine at Fort Drum, New York from the energy distribution network, which is an important issue for us to understand as we think about threats to our grid, the vulnerability of our base and defense system to cyber attacks. So what have you learned from this test? What has the Army learned? Have other services conducted similar tests? What are we doing, and can you maybe talk to me a little bit about what we are doing to make sure that we think about protecting our military assets from potential cyber attacks, potential other types of attacks that even if we had a missile attack or something like that, that could impact our grid that we have a plan to protect our military assets?

Ms. HAMMACK. Thank you for that question.

Certainly the Fort Drum project is a delight that it worked. It is a combination of things that were tried. It was a decommissioned, coal-fired plant that the private sector and the private sector's money rehabilitated into a biomass plant. It is taking clippings from the timber industry and using that for fuel. They are maintaining 3 months? worth of fuel within a 5-minute radius so that they could survive an extended outage. There was a requirement in the contract for them to put in additional technology to be able to disconnect from the grid.

The power plant in and of itself serves twice the needs of Fort Drum. So it is supplying power to the local community in addition to Fort Drum. But we wanted to simulate the grid dropping out and how that switch would occur. The switch was seamless. It was done in coordination with the utility so that the utility grid itself did not experience a shock and they knew what was going to go on.

So we demonstrated that right now Fort Drum is the most resilient installation in the Army's portfolio from an energy standpoint.

As we all learn more about cybersecurity, we are approaching that in a methodic way as well. It is interesting that cybersecurity is the unknown unknown. You do as much as you know about. We are working hard to ensure we stay abreast of current threat and current technology because our intent is that our installations are resilient so that they can become and remain the deployment platforms that this Nation expects of them.

Senator AYOTTE. Great. Thank you.

Do any of the other services want to comment? Similar projects?

Ms. BALLENTINE. Yes. I would say that from the Air Force perspective, mission assurance here and all around the world is absolutely dependent on energy assurance even at our CONUS [continental U.S.] bases. The Air Force executes a real-time mission from bases here in the United States. The threat environment has changed.

We have always thought about energy resiliency on our bases. We have always had diesel generators as backup, but it is a 19th century solution supporting 21st century weapon systems. So we are advancing how we think about energy assurance to have smart, cybersecure, highly dynamic, agile energy systems, microgrids, that allow us to be severed from the wider utility grid because the threat environment has changed. We are no longer in an environment where we are just planning for a big hurricane or an ice storm. We have to prepare for long-term outages, either due to physical threats against the U.S. grid or cyber attacks against the U.S. grid. So the Air Force has a number of tests, as well as with the other services.

I have to say this is an area where we collaborate very, very well. We work together. We are learning from each other. We are ensuring that we are not replicating tests and R&D [research and development] of various technologies. So we are not making the same mistakes twice, and we are really learning from one another.

Mr. MCGINN. We are taking in the Department of the Navy a hard look at all aspects of cybersecurity for our industrial controlled systems and our SCADA [supervisory control and data acquisition] systems for reasons of mission assurance. However, mother nature continues to be the greatest threat to mission resiliency in our installations around the world. So we are deploying more and more distributed energy closer to loads. We are deploying microgrids. I would describe them, Madam Chairman, as essential microgrids for our bases for operations.

This is a process that has begun with the deployment of distributed generation assets. Some of them are renewable energy. Many of them are gas-powered. An example of that latter category is at Marine Corps Station Yuma, Arizona where we have a 25-megawatt gas-fired peaker plant that is going on inside the defense line that will be able to cover all of our Marine Corps Air Station Yuma requirements should there be a grid outage. But in the meantime, it is very, very helpful to all of the customers of APS [Arizona Public Service], the utility that we are doing this partnership with, as a peaker plant to prevent a grid outage in times of heavy load.

Ms. HAMMACK. If you do not mind, one more project that we are working on in association with Hawaiian electric is in Hawaii where on Oahu most of the power is generated on the shoreline in the tsunami zone. Should there be a large weather event there, the whole island of Oahu is at risk. So in partnership with Hawaiian Electric, we are giving them an easement at Schofield Barracks so they will be putting in a 52-megawatt multi-fuel plant there that will power Schofield Barracks so we will have an Army barracks up, Wheeler Army Airfield, so there will be an airstrip since Honolulu airport is again on the shoreline in the tsunami zone, and it is also going to power a community hospital.

So when that gets up—we are doing the groundbreaking later this summer. When that goes up, we will again test it disconnecting those three locations, disconnecting from the grid to ensure we have resiliency to help restart the island.

Senator AYOTTE. Thank you. I think you might want to invite Senator Hirono to that groundbreaking. I am sure she really appreciates what you are doing there.

I understand that Senator Shaheen is on the way. So I am going to ask you some additional questions until she gets here to give her an opportunity to ask you.

Secretary McGinn, can you talk to me about the P–371 utility improvements project at the Portsmouth Naval Shipyard? You have listed that as an important project for the Navy for 2017, including utilities for nuclear facilities at the shipyard, and how that fits into some of our efforts there. There have been a lot of energy efficiency efforts at the shipyard, which I am glad that the Navy continues to support.

Mr. MCGINN. About a year and a half ago, we began an in-depth analysis of Portsmouth Naval Shipyard to determine the state of health, if you will, of the power utilities. As a result of that work, that analysis, we have identified exactly where the best use of dollars are for that project so that, as you know, anytime you have an outage, it has a lot of compounding costs when you stop critical operations in the shipyard and it delays the completion of a lot of key work. So that project is intended to increase the reliability, the resilience, if you will, of the shipyard, and to primarily eliminate the potential for mechanical failures, but will have other attributes as well to make it more robust in the face of any storm or other type of natural phenomenon.

Senator AYOTTE. Well, we really appreciate your including that in the 2017 request, and I think it is a really important priority to our prior discussion here about resiliency. It is very critical, obviously, at all of our facilities, especially the shipyard.

Mr. MCGINN. As you know, we love the productivity of Portsmouth and getting those boats in and out on time or earlier at or below or cost. We want to make sure that continues.

Senator AYOTTE. Well, we appreciate it, Secretary McGinn. When we can do some of these upgrades to our military construction, it makes it more efficient for our shipyard workers. I mean, we are so proud of them. They are phenomenal. They have been producing, as you know, even setting records when it comes to the work that they are doing in getting our attack submarine fleet back out in operation. So thank you.

Mr. MCGINN. That is great. Thank you.

Senator AYOTTE. I appreciate it.

With that, Senator Shaheen is now here. So I want to turn it over to her.

Senator SHAHEEN. Well, thank you, Senator Ayotte, both for holding this hearing and for keeping it open long enough so I could get here. I am a little late, I have to admit, because Bono was testifying before the Appropriations Subcommittee on Defense Operations.

[Laughter.]

Senator SHAHEEN. So I had to go there first.

But I certainly want to thank you all very much for what you are doing to focus on energy and energy use within our military. I think one of the really unknown secrets that people do not appreciate is just how advanced the military in this country is on addressing energy issues that we have. You all know more directly than anybody else the threat to our national security from too much dependence on overseas fuels, and so your work is really critical to our security efforts. I just want to start by thanking all of you for that.

Also, I want to thank you, Secretary Ballentine, for all of the support from the Air Force in dealing with the Haven well at Pease. I know Senator Ayotte has already addressed that and you have talked about that, but I want to add my appreciation for what the Air Force has committed to do and what you are working on. The community is very appreciative. So thank you very much.

I want to start, I guess, with you, Secretary McGinn, because one of the things that I understand has been successful in helping address efficiency has been the hybrid electric drives [HEDs]. As it has been explained to me, it is kind of like a Prius because it enables a warship to conduct anti-pirate patrols for longer periods. I do understand that there is a question about whether this is something that the Navy is going to continue to do in future years in our defense program. I just wondered if you could talk about that and what the Navy is thinking about with respect to HEDs.

Mr. MCGINN. We have in this budget and in the future years defense plan a start with two retrofits of our *Arleigh Burke* destroyers to hybrid electric drive which, as you point out, increases their on-station time and their loiter time, especially important in missions like ballistic missile defense and Tomahawk strike boxes. It allows them to stay there longer and be effective and not have to go alongside the oiler as frequently.

The plan in the FYDP [Future Years Defense Plan] calls for a 4-year, beginning in 2018, and it is our intention to keep that drumbeat going in the future.

There are always a lot of competing requirements within a particular program element, the *Arleigh Burke* destroyers. There is a balance between how much you want to do in the way of weapon systems and sensors and all that compared to the hull mechanical electric that hybrid drive would come under. But we intend to recognize not just the mission effectiveness, but the lifecycle cost savings over the 30- or 40-year life of an *Arleigh Burke* destroyer that hybrid electric drive brings.

Senator SHAHEEN. Thank you. I appreciate that that is going to continue. So that is good to hear.

Secretary Hammack, the New Hampshire National Guard ranks 51 out of 54 in terms of the condition of our facilities and armories. I do not know if Senator Ayotte has addressed this already. I assume we are both on the same path in terms of some of these New Hampshire issues. But I do want to say how pleased I was that this year's budget request includes two MILCON projects in New Hampshire. I wonder if you could talk about how the future efforts to address these kinds of shortfalls, not only in New Hampshire but around the country, would be affected by a return of sequestration to the budgeting process.

Ms. HAMMACK. Sequestration has severely cut our budgets, and this year's budget is 18 percent below last year's and 60 percent below fiscal year 2013. We are taking risk. We have a tremendous backlog across Active Duty, Army National Guard, Army Reserve. The total force has a huge backlog. The fact that we only put forward about 31 projects for authorization out of hundreds that are backlogged. If you say five per state and then five per major base, you are getting into somewhere around 700 to 800 that are backlogged across the United States. Sequestration has caused us to take risk in military construction.

We know that we are building facilities to last for 50 years. Yet, we are funding replacement of facilities at well over 100 years? life. That equation just simply does not work. The effects of sequestration are felt the hardest in the installation community. I think that holds true across the services.

Senator SHAHEEN. What does that mean for readiness? For example, we just welcomed home about 350 members of our Guard who had been in the Middle East, and they had a number of accolades that they had achieved while over there because of what a great job they did. But what does having these kinds of outdated facilities to train with—what does that do to our readiness?

Ms. HAMMACK. I have got to tell you I actually visited them over there, and they gave me a little bottle of maple syrup. I said, serious, guys, you brought this over with you? They did. Little bottles of maple syrup. They said it is a little taste of home.

Senator AYOTTE. Are they not awesome?

Ms. HAMMACK. They are awesome.

But they needed military construction in theater, and they were in tents that were not in the best condition, yet they were still doing a great job.

Unfortunately, sequestration is affecting us across the board, and we are not doing what we know we should do in installations. The risk, though, in underfunding installations and military construction is not loss of life or limb. The risk in underfunding manning and the risk in underfunding training and the risk in underfunding equipment is loss of life or limb. When you underfund installations, there is risk, but it is a mitigatable risk. The longer, though, that you underfund, that risk gets greater and greater. We are getting to that point, having seen the last 5 years of underfunding installations and military construction, that that backlog is getting to a breaking point. I think the National Guard and their Readiness

Center Transformation Master Plan really identified the risks that the National Guard is seeing.

Senator SHAHEEN. Thank you for that, and I certainly agree. So hopefully we will—and I know this subcommittee and the entire Senate Armed Services Committee is committed to trying to roll back those cuts from sequestration because we appreciate the impact that it is having.

I am out of time, but hopefully the chair will let me continue.

I just want to ask one final question. Mr. Potochney, am I pronouncing that correctly?

Mr. POTOCHNEY. Yes, ma'am.

Senator SHAHEEN. The budget request includes $113.6 million from MILCON-related activities that are associated with the European Reassurance Initiative [ERI]. I have just come back from a trip to Europe where I met with some elected officials from the Baltics, from Eastern Europe who were very appreciative of the increased support for the ERI in the President's budget. So can you talk a little bit about what projects that this funding will support and how those projects improve the capabilities of our forces in Europe?

Mr. POTOCHNEY. I can do so in general terms. They enhance our capabilities and our presence and our reassurance for our allies. In that regard, they allow us to carry out the—to conduct or to maintain the capabilities that we need. We can go through—and I can get you for the record—each one of the projects and what it is specifically going to do if that would help. I would be happy to do that.

Senator SHAHEEN. I would very much appreciate that.

[The information referred to follows:]

The Department's European Reassurance Initiative (ERI) military construction request funds 20 projects, as well as planning and design funding at various locations throughout Eastern Europe. The fiscal year 2017 ERI projects will enhance prepositioning of U.S. combat equipment and provide support infrastructure improvements to training sites and increase range capabilities. ERI projects will also improve airfield infrastructure across the European theater to provide increased dispersal options, an increased level of fixed-wing fighter operations, as well as additional mobility capabilities. The airfield support facility improvements are necessary to make fighter and air mobility operations less dependent on weather and optimize training and operations.

Senator SHAHEEN. I will point out I think I heard you say that these are critical to us as well as our European allies——

Mr. POTOCHNEY. Yes, ma'am.

Senator SHAHEEN.—which I think is an important piece of the consideration there because as we look at the challenge that we are facing on the eastern front of Europe from Russia, it is very important that we are working in conjunction with our European allies.

Mr. POTOCHNEY. Yes, ma'am.

Senator SHAHEEN. Thank you.

Thank you very much, Madam Chairman.

Senator AYOTTE. Thank you, Senator Shaheen.

This concludes the hearing, and I want to thank all of our witnesses for your service and your testimony today.

[Whereupon, at 3:53 p.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

DEPARTMENT OF DEFENSE NEW HAMPSHIRE CLEANUP SITES

Senator AYOTTE. Mr. Potochney: In your witness statement you noted that "84 percent of our 39,000 sites have reached Response Complete."

My staff requested an update on Department of Defense cleanup projects in New Hampshire. Your staff provided a list of 32 cleanup sites in New Hampshire.

1. What percentage of the cleanup sites in New Hampshire are 'response complete'?

Mr. POTOCHNEY. Through the end of fiscal year 2015, the Department of Defense has achieved response complete at 83 percent of the cleanup sites in New Hampshire.

2. Senator AYOTTE. What is your plan to get the rest of these New Hampshire sites complete as soon as possible?

Mr. POTOCHNEY. Through the end of fiscal year (FY) 2015, we have completed cleanup at 83 percent of our sites in New Hampshire, and we are working hard to finish the remaining sites as quickly as possible. We expect to complete cleanup at 27 of the remaining 32 sites by the end of fiscal year 2020, at which point 97 percent of the sites in New Hampshire will be at response complete. We are studying the five sites we will not complete by fiscal year 2020 to characterize them and develop appropriate cleanup strategies.

LONG RANGE DISCRIMINATION RADAR SYSTEM COMPLEX

Senator AYOTTE. Mr. Potochney: In your written statement you mentioned the fiscal year 2017 budget request for Phase 1 of the Long Range Discrimination Radar System Complex in Alaska.

3. Mr. Potochney and Secretary Ballentine: Can you provide an overview of this requested project and discuss what would specifically occur in Phase 1?

Mr. POTOCHNEY. and Ms. BALLENTINE. The Long Range Discrimination Radar (LRDR) is the new midcourse tracking radar that will provide persistent coverage and improve discrimination capabilities against long range ballistic missile threats to the homeland from the Pacific theater. Discrimination capability is the missile defense function that distinguishes between lethal and non-lethal objects in the threat missile cluster. LRDR will also provide larger hit assessment coverage enabling improved warfighting capability to manage Ground Based Interceptor inventory by enabling the Ballistic Missile Defense System to implement an improved post-intercept assessment capability.

The LRDR will be built in 2 phases: Phase 1 includes construction of a Missile Defense Radar System Complex and will construct a System Security Level-A secure boundary with an entry control facility, the mission control facility, the radar foundation, site infrastructure and security, along with the necessary utilities to provide initial operations of the radar. Phase 2, programmed for fiscal year 2019, will construct a HEMP shielded power plant.

4. Senator AYOTTE. Secretary Ballentine: In light of the growing ballistic missile threat from North Korea, what missile defense capabilities would this project provide?

Mr. POTOCHNEY. The Long Range Discrimination Radar (LRDR) is the new midcourse tracking radar that will provide persistent coverage and improve discrimination capabilities against long range ballistic missile threats to the homeland from the Pacific theater. Discrimination capability is the missile defense function that distinguishes between lethal and non-lethal objects in the threat missile cluster. LRDR will also provide larger hit assessment coverage enabling improved warfighting capability to manage Ground Based Interceptor inventory by enabling the Ballistic Missile Defense System to implement an improved post-intercept assessment capability.

QUALITY DOD SCHOOL FACILITIES FOR MILITARY FAMILIES

Senator AYOTTE. Mr. Potochney: You mention in your written statement that your military construction budget continues the Department's 10 year plan to "replace and recapitalize more than half of the [DOD] schools."

5. Can you please provide an update on the effort to provide our military families the quality school facilities for their children that they deserve?

Mr. POTOCHNEY. The Department of Defense Education Activity (DODEA) goal is to have all 173 school facilities in a Good or Fair (Q1 or Q2) condition by fiscal year 2024 as defined by its recapitalization plan. The 10 year plan objective was delayed by three years to address additional analysis required to accommodate decreasing force structure, completion of the European Infrastructure Consolidation review, and to address site challenges at several overseas locations. Since receiving initial recapitalization funds in 2011, DODEA has completed renovations, additions, or replacement of 12 schools. DODEA also has 83 school projects in planning and design, or currently in construction and is on track to meet the 2024 plan goal.

PUBLIC SHIPYARD DRY-DOCK CONSTRUCTION AND MODERNIZATION

6. Senator AYOTTE. Secretary McGinn: How important are the dry-docks at our public shipyards to the Navy and our nation?

My understanding is that naval shipyard dry-dock capacity is substantially inadequate to serve the future life-cycle depot-level maintenance needs of the U.S. Navy fleet. This means that significant investment in dry-dock facilities at our four public shipyards is necessary. I understand that more than $2.3 billion is needed in dry-dock construction and modernization might be needed at the four public shipyards.

Mr. MCGINN. Importance to Navy: The ability of the public shipyards to fulfill their mission of depot-level nuclear ship maintenance is highly dependent on the condition of dry docks along with related facilities, including piers, nuclear facilities, production shops, and utilities. Without dry docks, depot-level submarine, aircraft carrier, and ship maintenance cannot be accomplished.

Importance to the nation: The execution of submarine, aircraft carrier, and ship depot-level maintenance is essential to national defense, and the continued availability of dry dock capacity is essential to ensure an effective and timely response for mobilization, national defense contingency situations, and other emergency requirements.

7. Senator AYOTTE. Secretary McGinn: Can you specifically describe the need for dry-dock construction and modernization at each of the public shipyards?

Mr. MCGINN. Naval shipyard dry dock concerns are being driven by the following:

1. New ship characteristics render some dry docks obsolete.
2. Unprecedented Inactivation and Reactor Compartment Disposal workload (SSN 688 Class and CVN 65 and 68 Class) over the next three decades.
3. Environmental vulnerabilities (seismic and flooding) have the potential to cause loss of critical facilities.
4. All dry docks require periodic maintenance and repair to maintain certification.

Summary by shipyard:

- Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF)
  - o Requires investment to increase the physical capacity of a dry dock to support CVN 78 Class.
  - o Requires dry dock electrical and salt-water cooling utility upgrades to accommodate new systems.
  - o Requires mitigation for existing dry dock seismic vulnerabilities.
- Norfolk Naval Shipyard (NNSY)
  - o Requires upgrades to dry dock salt-water cooling utility to accommodate CVN 78 Class. Electrical utility upgrades are underway.
  - o Requires investment to mitigate dry dock flooding risks during extreme weather events.
- Portsmouth Naval Shipyard (PNSY)
  - o Requires investment to increase the physical capacity of a dry dock to support *Virginia*-class Submarines with *Virginia* Payload Module.
- Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY & IMF)
  - o Requires investment to increase the physical capacity of a dry dock to support *Virginia*-class Submarines with *Virginia* Payload Module.

The estimated costs are pending the completion of the ongoing Dry Dock Modernization study. Cost estimates are impacted by pre-construction site studies, such as National Environmental Policy Act requirements, class maintenance plan changes, workload forecasting between public and private shipyards, and improved depot maintenance performance.

8. Senator AYOTTE. Secretary McGinn: How does the Navy plan to resource this requirement without crowding out other required military construction projects?

Mr. MCGINN. The Naval Sea Systems Command Dry Dock Modernization study is not yet complete, and the Navy is still in the process of evaluating all available courses of action to ensure Naval Shipyards maintain mission capability. The options being considered include modifying dry docks to increase capacity, using floating dry docks, and upgrading dry dock utility systems to make them CVN 78 capable.

NEW CONSTRUCTIONS REFLECT THE FUTURE WORKFORCE

9. Senator AYOTTE. Secretary McGinn: As the Navy conducts new construction and major renovations, in terms of bathrooms and locker rooms, what assumptions are made regarding the ratio of men and women?

Mr. MCGINN. The building user determines the actual number and gender of personnel whom will occupy the building. During the building design phase, bathroom and locker room capacity/ configuration is determined based on the number and gender of the buildings occupants. Specific plumbing fixture allowances are then determined in accordance with DOD Unified Facilities Criteria.

10. Senator AYOTTE. Secretary McGinn: Do these assumptions reflect the current or anticipated demographics during the life of the building?

Mr. MCGINN. It reflects the current building occupancy. As the building is repurposed throughout the life cycle, bathroom and locker room capacity/configuration and the associated fixtures are determined based on the proposed new facility user group.

INTEGRATED LODGING PILOT PROGRAM

Senator AYOTTE. Secretary McGinn: On January 27, I wrote to Admiral Dixon Smith about the conditions at the Navy Gateway Inns and Suites in Norfolk at Scott Center Annex that many of my constituents have had to endure while conducting TDY.

Some of my constituents, preparing to conduct maintenance on nuclear-powered submarines the next day, had to sleep in their cars due to elevated temperatures.

I appreciate that Admiral Smith took the time to visit the facility. However, I am concerned that he is saying the temperature problem in the rooms will not be addressed until 2018, and that is too long for my constituents to wait.

11. As we enter the summer months, what can we do to expedite a necessary solution to the temperature problems in the rooms there?

Mr. MCGINN. The Navy Gateway Inns and Suites (NGIS) at Scott Center Annex, Norfolk, is currently on a system that provides both heat and Air Conditioning (AC) to the room. The current two-pipe system configuration is unable to run both heat and AC simultaneously. The change of season's transition date, from heat to AC in the spring and back to heat in the fall, varies by year and is normally based on outside ambient temperatures. It is during this transition period that issues with room temperatures (too hot or too cold) are most likely to occur. Currently as we enter the summer months, the system is set to keep room temperature at 72 degrees when the AC is on. The planned fiscal year 2018 upgrade to the system will allow for both heat and AC to run simultaneously, eliminating the twice—a-year transition period. If an NGIS is unable to maintain comfortable room temperatures, patrons will be offered the opportunity to move to a different room, another NGIS, other military lodging facility or off-base lodging facilities up to the full per diem rate.

12. Senator AYOTTE. If this problem cannot be fixed sooner, will the Navy permit my constituents to stay elsewhere-providing them full reimbursement?

Mr. MCGINN. The Navy is committed to providing comfortable accommodations for all our guests at Navy Gateway Inns & Suites (NGIS) facilities. If an NGIS is unable to maintain comfortable room temperatures, patrons will be offered the opportunity to move to a different room, another NGIS, , other military lodging facility or off-base lodging facilities up to the full per diem rate.

10 U.S. CODE § 2476

Senator AYOTTE. When 10 U.S. Code § 2476 was revised to increase the minimum funding level to 6 percent of total revenue of the military depot, "sustainment activities pertaining to maintenance" were specifically excluded from the calculation. It appears that DOD is continuing to determine the funds available for both invest-

ment and sustainment in its military depots using the 6 percent rule even though the Statute specifically excludes funds spent for sustainment from the calculation.

13. Secretary McGinn: It is my understanding that Department of Navy is now adding investment and sustainment requirements related to utility systems into the 6 percent calculation. Is this correct?

Mr. MCGINN. The DON does not include funds spent for sustainment in its calculation to meet the 6 percent minimum capital investment for certain depots per 10 USC § 2476. More specifically, the DON does not include funds spent for sustainment related to utility systems.

DELAYED MILCON PROJECTS

Senator AYOTTE. All witnesses: The budget for military construction is over $1 billion short of what it was projected to be this year in last year's future year defense program (FYDP).

14. How many military construction projects that you had planned to request for fiscal year 2017 have been deferred as a result of budget shortfalls?

Mr. POTOCHNEY. For completeness, attached is the list of all military construction projects that have been either added to and removed from the fiscal year 2017 Military Construction program. Please see Appendix A for Milcon Projects.

Ms. HAMMACK. As a result of shortfalls due to fiscal constraints under current law budget caps, the Army deferred 10 planned projects valued at $286 million from its fiscal year 2017 Military Construction Program. Of the 10 projects, four are Military Construction, Army; three are Army National Guard; two are Army Family Housing Construction; and one is Army Reserve.

Mr. MCGINN. The Department of Navy's fiscal year 2017 budget request deferred 36 projects (totaling $940 million programmed) which were previously programmed for fiscal year 2017 in the Fiscal Year 2016 Future Years Defense Program (FYDP). Of these, 18 projects were delayed in order to meet budget controls and 18 were replaced with higher priority requirements.

Ms. BALLENTINE. From the Total Force perspective, the Air Force deferred 31 military construction projects (10 Active Duty, 10 Air Force Reserve and 11 Air National Guard) as a result of budget shortfalls. The complete list is identified below.

AIR FORCE KC–46A FUSELAGE TRAINER MILCON REQUEST

Senator AYOTTE. Secretary Ballentine: As you note in your prepared statement, to support the arrival of the KC–46A at Pease, the Air Force's Fiscal Year 2017 budget proposal includes a $1.5 million military construction request to install a KC–46A fuselage trainer.

15. Can you explain why this MILCON project is important?

Ms. BALLENTINE. The project is a vital part of the beddown of the KC–46A at Pease. It is necessary for full operational capability of the KC–46A mission and will ensure uninterrupted and cost effective training of personnel supporting home station and COCOM taskings. The KC–46A is a new aircraft acquisition replacing the KC–135. Additional part-task training equipment items are required that did not exist for the KC–135 mission. Existing facilities are not adequately configured for the new training components and must be converted for the new function. If not provided, aircrews will require travel to other installations to conduct training. The lack of adequate training facilities increase the potential for significant degradation of mission readiness and performance. There are no other facilities or cost-effective workarounds available to accommodate this requirement to support the new mission. Without this facility, the Air Force will incur costs to store and/or re-direct the fuselage trainer equipment.

SOUTH KOREA

Senator AYOTTE. Mr. Potochney: The administration is requesting that we authorize significant funds for host nation in-kind contributions on the Korean peninsula as part of the shift away from Seoul.

16. What are the additional elements that we can expect to see in the future to complete this effort, and how much of that will rely upon U.S. taxpayer funds vs. host nation contributions?

Mr. POTOCHNEY. As required under section 2803 of the National Defense Authorization Act for Fiscal Year 2015, the Department of Defense has requested the authorization of $684.1 million of in-kind contribution construction projects to be accepted from the Republic of Korea (ROK) under the U.S.-ROK Special Measures

Agreement (SMA). The SMA specifies cost sharing contributions the ROK makes toward the costs of stationing U.S. forces on its territory.

The $684.1 million of in-kind contribution projects support the military construction requirements of U.S. Forces in Korea to include U.S. construction obligations under the Land Partnership Plan. The Land Partnership Plan is one component of the U.S. Forces Korea Relocation Program, where the relocation program—composed of the Land Partnership Plan and Yongsan Relocation Plan—move the majority of U.S. Forces located in the city of Seoul and north of Seoul to areas in the southern half of the ROK.

Most U.S. construction obligations under the Land Partnership Plan have already been met, being resourced for the most part with ROK construction contributions accepted by the U.S. under the SMA. Future Land Partnership Plan projects that will be resourced with ROK in-kind construction contributions include a brigade headquarters facility, site development, and a school.

IMPACT OF BUDGET ON ENVIRONMENTAL CLEANUP

17. Senator AYOTTE. All Witnesses: How have budget challenges limited your ability to meet environmental compliance, conservation, and cleanup obligations?

Mr. POTOCHNEY. Budget challenges have not limited DOD's ability to meet environmental compliance, conservation and cleanup obligations. DOD continues to fund its statutory and regulatory requirements. DOD's Fiscal Year 2017 President's Budget request for environmental programs was $3.4B, which is only a 2 percent reduction from the fiscal year 2016 appropriations, and a less than 1 percent reduction from the fiscal year 2016 request. Budget constraints have caused relatively minor delays in the cleanup program. While these delays are not ideal for cost or efficiency of the overall program, none of the delays have impacted negotiated schedules for our National Priority List sites.

Ms. HAMMACK. The Army's Fiscal Year (FY) 2017 Environmental Program budget request of $1.05 billion is a decrease of 6.25 percent from the $1.12 billion fiscal year 2016 appropriation, as a result of budget budget caps under current law. At this funding level, the Army will meet its current statutory requirements and commitments and maintain a sound compliance posture for air, water, and waste management. However, progress will slow toward meeting future goals. In addition, budget challenges result in risk being taken in Pollution Prevention, Environmental Technology, and Environmental Cleanup programs. Deferral of pollution prevention projects and environmental technology initiatives can be an "opportunity lost" to make Army environmental practices and programs more efficient and effective. The impact to the cleanup program will result in delays finalizing cleanup investigations, as well as deferring and extending the construction timeframes of some cleanup remedies. Deferring or delaying cleanup projects can also result in increased costs to complete projects and increased regulatory pressure and enforcement actions.

Mr. MCGINN. DON has met all legal agreements and requirements within the environmental compliance, conservation, and cleanup programs, despite the budget challenges over the past five years. We have prioritized our investments to meet these requirements with a key focus on protecting human health and the environment. Specifically within the cleanup program, these decreased budgets have resulted in lower priority sites being delayed to future years.

Ms. BALLENTINE. The current fiscal environment has led the Air Force to reduce and defer some lower priority requirements in environmental compliance and conservation. For example, compliance education and training focuses on compliance mandated training while leaving very little professional development or awareness training. Budget reductions affect the conservation program by deferring lower priority historic and archeological asset surveys which are important but do not have specific completion deadlines. Although the Air Force has continued to manage natural/built infrastructure to reduce risks and mission impacts, while meeting all applicable legal and regulatory obligations, Executive Orders, and DOD/Air Force policies, long term budget reductions and funding deferments may impede our ability to manage these resources efficiently and effectively in the future. Budgetary challenges and a dynamic and evolving regulatory environment have strained the program by limiting our ability to address emerging contaminant challenges, but the Air Force is still focused on meeting its currently identified environmental compliance and cleanup obligations.

UTILITIES PRIVATIZATION

18. Senator AYOTTE. All Witnesses: Can each of you provide a brief update on your service's activities related to utilities privatization?

Mr. POTOCHNEY. The Department has privatized 585 systems under the authority of 10 U.S.C. §2688 as well as those privatized under separate authority including 10 U.S.C. §2671 as of January 1, 2016. These equate to: Army, 373; Navy, 58; and Air Force, 154.

Ms. HAMMACK. The Army has privatized 151 systems at 62 installations, representing 43 percent of its U.S. utility systems. These include 41 electric, 39 natural gas, 33 water, 35 wastewater, and 3 heat/power systems. Another 107 system evaluations are scheduled or in progress for UP decisions through fiscal year 2023.

Mr. MCGINN. Department of the Navy (DON) has privatized ten percent of current utility systems that distribute electricity, natural gas, water, wastewater, or thermal energy. Of DON's 811 utility systems, 164 systems are owned by others (built and maintained by entity other than U.S. Government or where overseas status agreements prevail). 64 systems have been privatized, leaving 583 systems available to privatize.

In late 2015, Navy executed a privatization contract for the Naval Air Station Key West waste water system (considered five waste water systems). Office of the Secretary of Defense (OSD) recently completed a post-conveyance survey and study that examined the "pro et contra" of systems that have been privatized. Navy sponsored a study that looked at alternative base management concepts including utilities privatization. Additionally, Navy is finalizing a facility/utility privatization study that evaluates the policies, statutory requirements and the cost-benefit analysis of privatized systems.

The Navy acknowledges unique situations wherein divestiture of utility assets and establishment of utility service contracts are advantageous. The Navy fully intends to continue the Utilities Privatization program where economically feasible and in support of evolving resilient, cyber secure and energy efficient directives. Current Navy policy is to privatize utility systems when cost effective, where minimal energy security constraints exist and where there are limited regulatory constraints that might restrict transactions such as state regulations.

Ms. BALLENTINE. Air Force continues to analyze and privatize utility systems where there are no precluding security impediments and a favorable economic business case supports conveyance of the infrastructure to a private owner. However, as a result of budget constraints in recent appropriation years, the Air Force temporarily paused initiating new analyses and issuing new requests for proposal. The pause has not affected the more than 60 systems that were under analysis or in solicitation at the time the pause was implemented. In order to ensure funding is available for solicitations that may result in awarding a contract, we do not anticipate lifting the pause until resources can be identified across the Future Year Defense Plan. If resources are identified and the pause is lifted, the Air Force will schedule more than 175 remaining systems for analysis and potential privatization.

19. Senator AYOTTE. All Witnesses: What benefits and challenges have you seen when it comes to utilities privatization?

Mr. POTOCHNEY. The Department has found over many years of privatizing utilities that it provides greater resilience to our bases and benefits than originally predicted. Some of these benefits are: the provider often operates at higher standards, resulting in greater resilience and reliability through modernization of systems; reductions in emergency and service calls; and better trained resources. In addition, the Utilities owning the systems leverage all resources within their territories, allowing them to immediately address any life safety issues, outages, and implement preventive maintenance programs that sustain systems.

The Military Services are also realizing commodity reductions, for example, the Army has reported an estimated 31 percent less gas use across their privatized utilities and 28 percent less water use after privatization. The Air Force is receiving similar commodity savings for their privatized systems.

Utilities privatization also comes with unique challenges such as discrepancies in system inventory (between a proposed contract vs. post-privatization); funding for modification and planning for capital upgrades; and need for better metrics to manage long term success of privatization (i.e., service contracts can be executed up to 50 years).

Ms. HAMMACK. The Utilities Privatization (UP) Program is the Army's preferred strategy to recapitalize and sustain utilities infrastructure by leveraging private financing and expertise to provide for more safe, efficient, and reliable mission support. A summary of life-cycle cost analysis for the UP portfolio shows a 28 percent cost avoidance ($2.1 billion Net Present Value), as compared to the Army cost for similar upgrades, operations, and maintenance. We see additional, second order benefits to energy security and resilience. For water systems, metered data show dramatic leak reductions following privatization. When the combined benefits of oper-

ating cost reductions and commodity savings are compared to UP Program costs, the Army calculated a Benefit-to-Cost Ratio of 14.4 to 1 for the past three years. Additionally, UP investments are prudent insurance against potential infrastructure failures.

Mr. MCGINN.

Benefits:

- Privatization can lead to improved reliability, resiliency, and energy savings for DOD utility systems
- Privatization allows for more predictable and regular capital budgeting for recapitalization and system improvements
- Privatization can reduce liability concerns for catastrophic or unforeseen conditions because privately owned systems are required to be insured vice Department of Defense (DOD) self-insurance

Challenges:

- Privatization agreements create a "must-pay" bill for DOD commodity users, which can reduce flexibility in their budget execution (no ability to reduce sustainment funding in the future to meet emergent Service requirements)
- Successful privatization programs require additional overhead and costs, which are difficult to secure in the current constrained funding environment.
- Privatization contracts can take multiple years to execute, which adds overhead costs and takes staff away from operational requirements
- Some potential DOD systems are either in poor condition (due to lack of sustainment resources) or are nearing the end of their useful life. Private partners require DOD to provide up-front capital in order to achieve a sustainable system that can be insured and privatized. These privatization first-costs (capital improvements) are extraordinarily difficult for DOD Services to program in the current constrained funding environment. Additionally, these up-front costs usually impact DOD commodity rates, making them very difficult to implement. (If these DOD first-costs could be made without impacting rates or the budgetary scoring system, additional DOD systems may be more viable as privatization candidates.)

Ms. BALLENTINE. The benefit of Utilities Privatization (UP) is that it restores systems to industry standard. A system at industry standard improves reliability, reduces commodity consumption, and the cost of system operation, maintenance, repair and recapitalization over the long term. Paradoxically, the most significant benefit is also the biggest challenge; maximizing reliability and resilience requires significant near-term investment to eliminate system deficiencies. Finding the resources in times of constrained budgets is challenging. Additionally, we have two other challenges; privatization of wastewater treatment plants (WWTPs) and a Department of Labor determination that Davis Bacon Act (DBA) applies to UP. Privatization of WWTPs is impacted as the Resource Conservation and Recovery Act's domestic sewage exclusion (DSE) would no longer apply to operations of the WWTP on an installation. This limits the range of competition because privately owned WWTPs would likely be regulated under different, and potentially more stringent, regulatory requirements. Lastly, DBA results in increased costs and oversight negatively impacting the business case for UP. We believe DBA rules do not apply to UP contracts awarded under FAR Part 41, Utility Services. We believe legislation could help mitigate these challenges.

STORMWATER IMPACT

Senator AYOTTE. All Witnesses: I have heard reports of outdated drainage systems on some bases causing negative mission impacts.

20. How big of a problem is outdated drainage systems for each service?

Mr. POTOCHNEY. Even though our drainage systems may be old, we are not aware of any major issues throughout DOD. There may be areas on some installations where heavy precipitation can cause occasional flooding, but these are rarely chronic and mission impact is minimal and isolated to those times of severe weather. Chronic instances are addressed on a case by case basis.

Ms. HAMMACK. Operating and maintaining our stormwater infrastructure does present some challenges, as many of the drainage systems use overland routes to collect the stormwater into natural streams and water retention basins. However, while the Army has some older stormwater collection and drainage systems, they do not pose a significant negative impact to Army mission capabilities. Although some drainage systems are not performing optimally or as designed, the Army has not seen any trend toward significant non-compliance with National Pollutant Discharge Elimination System (NPDES) permits for stormwater.

Mr. MCGINN. Outdated drainage systems are not a signifcant problem for the Navy. Generally issues only arise when extreme weather results in volumes of stormwater that exceed the design capacity of the system. Examples include major flooding to heavy rains at NSA Mid-South in 2010 and storm surges at NAS Pensacola in 2013. Garnering more of Navy's concern is ensuring compliance with applicable environmental regulations for stormwater systems.

Ms. BALLENTINE. There are no indications that there are systemic, Air Force-wide problems related to storm drainage. $30 million to $52 million a year for the last three years were invested to sustain and modernize stormwater drainage systems across the enterprise. As the Air Force shifts toward centralized execution of projects the drainage requirements have been identified and executed at a higher rate as a part of the Asset Management business model. The Air Force will continue to monitor the capability and capacity of these systems in light of future risk factors such as system age and global warming. There is always a risk that larger than normal weather events could exceed the capacity at any particular installation, but there are no indications that Air Force missions are routinely at risk due to drainage systems.

21. Senator AYOTTE. What is your plan to address these outdated drainage systems?

Mr. POTOCHNEY. Even though our drainage systems may be old, we are not aware of any major issues throughout DOD. There may be areas on some installations where heavy precipitation can cause occasional flooding, but these are rarely chronic and mission impact is minimal and isolated to those times of severe weather. If they become systemic, they will be addressed on a case-by-case basis.

Ms. HAMMACK. Recapitalization of utility and drainage system infrastructure is included in each installation's capital investment plan. Where appropriate, the Army incorporates new or updated drainage strategies that maximize natural recharge and minimize run-off. Along with other utilities, existing stormwater infrastructure competes within the Army's limited resources. Consistent with OSD guidance, strategic and financial priority is placed on investments in communications, natural gas, electrical, water, wastewater, heating, and cooling systems. These other utilities provide mission-critical capabilities, carry valuable commodities, or pose more significant and direct risks to health, safety, and the environment, than does stormwater drainage. However, specific stormwater requirements stipulated under Clean Water Act / NPDES permits are given a priority and limited stormwater repairs are performed as required on a case-by-case basis. Army has considered stormwater systems in developing its schedule for Utilities Privatization (UP) evaluations.

Mr. MCGINN. Outdated drainage systems are not a significant problem for the Navy, but are identified through specialized structural inspections based on system criticality; projects to address drainage issues are subsequently developed, prioritized, and compete for available funding. Drainage systems not meeting design requirements or are in failing condition that result in mission impacts or environmental regulation violations would receive higher priority than other drainage issues. Substandard drainage systems may be replaced or upgraded as part of MILCON projects, or repaired through O&M,N funded projects.

Ms. BALLENTINE. The Air Force uses a risk based model to determine investment in the infrastructure portfolio. Storm water and drainage projects compete against all infrastructure repair, maintenance and sustainment requirements in the Air Force. Installations have identified potential projects to repair, sustain and maintain storm water systems and drainage. There are 21 drainage and/or storm water projects valued at $30.6 million planned to take place at 16 bases in fiscal year 2016. In fiscal year 2017, there are 23 projects worth $51.6 million programmed to be executed at 16 bases. After fiscal year 2017, there will still be 57 requirements worth $51.9 million at 28 bases that will need to be completed in the following years. The Air Force is taking a proactive approach to address the current condition of drainage systems in order to address its readiness and mission support.

22. Senator AYOTTE. Referring to section 2813 of the Fiscal Year 2016 NDAA, is OSD or your service aware that the fiscal year 2016 NDAA explanatory text explicitly stated, "We note that there has been confusion about whether the definition of a utility system for the treatment of wastewater includes the treatment of stormwater. We believe, consistent with the Department of Defense's interpretation, that wastewater includes stormwater."?

Mr. POTOCHNEY. Even though stormwater is not covered explicitly in the definition of "utility system" in 10 U.S.C. §2688(i), the Department agrees with the option to include conveyance of stormwater treatment on a case-by-case basis where it

makes economic sense. Currently the DOD is drafting language to include further clarification on current internal guidance.

Ms. HAMMACK. Yes, the Army is aware of the fiscal year 2016 NDAA explanatory text stating that the definition of a utility system for the treatment of wastewater includes the treatment of stormwater.

Mr. MCGINN. Yes, Navy is aware of this 2016 NDAA text.

Ms. BALLENTINE. The Air Force is aware of the fiscal year 2016 NDAA explanatory text stating that the definition of a utility system for the treatment of wastewater includes the treatment of stormwater. However, stormwater is not included in the definition of "utility system" in 10 U.S.C. §2688(i). The Air Force believes explanatory text provides guidance, but the language in the statute provides the basis for compliance policy. At this time we are unaware of any OSD interpretation on the treatment of stormwater as explained in the NDAA's explanatory text. The Air Force canvassed the Army, Navy, and Department of Defense on this question and are unaware of any countervailing opinions.

QUESTIONS SUBMITTED BY SENATOR MAZIE K. HIRONO

INSTALLATION ENERGY RESILIENCE PLANNING

23. Senator HIRONO. Secretary Hammack and Mr. Potochney, I commend the Army for expanding its use of renewable energy, including the upcoming biofuel-capable generation plant at Schofield Barracks in Hawaii. Last year, I introduced the DOD Energy Security Act, which would require the DOD to plan for integrating on-site power generation, energy storage, and micro-grid technologies to enhance energy security at critical military installations. What plans do the Army and the rest of the Department of Defense have to enhance energy resilience at critical installations?

Mr. POTOCHNEY. It is Department of Defense policy that DOD Components shall take necessary steps to ensure energy resilience on military installations. DOD Components are required to plan for and have the capability to ensure available, reliable, and quality power to continuously accomplish DOD missions from military installations and facilities. This includes aligning energy requirements to critical DOD missions, appropriately sizing energy generation systems; and maintaining, fueling, and testing energy generation systems and infrastructure. DOD Components are also required to perform periodic vulnerability assessments and audits to assess the risk of energy disruptions on military installations, and implement remedial actions to remove unacceptable energy resilience risks.

Ms. HAMMACK. It is Department of Defense policy that DOD Components shall take necessary steps to ensure energy resilience on military installations. DOD Components are required to plan for and have the capability to ensure available, reliable, and quality power to continuously accomplish DOD missions from military installations and facilities. This includes aligning energy requirements to critical DOD missions; appropriately sizing energy generation systems; and maintaining, fueling, and testing energy generation systems and infrastructure. DOD Components are also required to perform periodic vulnerability assessments and audits to assess the risk of energy disruptions on military installations, and to implement remedial actions to remove unacceptable energy resilience risks.

The Army's large-scale renewable energy portfolio includes 14 projects throughout the United States, totaling approximately 350 MW and over $880 million in capital investments. The 50 MW multifuel-capable power generation plant under development at Schofield Barracks in Hawaii is evidence of Army efforts to enhance energy resilience at a critical installation. Other large-scale renewable energy projects located on installations in Arizona, Georgia, Maryland, New York, Texas, and Alabama further demonstrate the Army's efforts to enhance energy resilience at critical installations.

24. Senator HIRONO. Secretary Hammack and Mr. Potochney, how can renewable sources of power such as solar and wind provide utility resiliency?

Mr. POTOCHNEY. Energy resilience solutions are not limited to traditional standby or emergency generators and can include integrated and distributed renewable energy generation sources. Renewable energy can provide on-site generation independent from the local grid and improve the energy resilience of military installations. Specifically, renewable energy systems, when installed with the necessary inverter hardware and coupled with battery storage or other forms of on-site, distributed energy generation, can provide continuous power to a military installation in the event of an energy disruption. This redundant, secure and reliable power from

renewable generation can significantly reduce the consequences of blackouts or other power disruption events and helps to enable the DOD to continue to carry out its mission.

Ms. HAMMACK. Energy resilience solutions are not limited to traditional standby or emergency generators and can include integrated and distributed renewable energy generation sources. Renewable energy can provide on-site generation independent from the local grid, and thereby improve the energy resilience of military installations. Specifically, renewable energy systems, when installed with the necessary inverter hardware and coupled with battery storage or other forms of on-site distributed energy generation, can provide continuous power to a military installation in the event of an energy disruption. This redundant, secure and reliable power from renewable generation can significantly reduce the consequences of blackouts or other power disruption events, and helps to enable the DOD to continue to carry out its mission.

25. Senator HIRONO. Secretary Hammack and Mr. Potochney, to what extent, if any, have you achieved the ability to continue to operate our installations in the event of a grid disruption?

Mr. POTOCHNEY. It is Department of Defense policy that DOD Components shall take necessary steps to ensure energy resilience on military installations. DOD Components are required to plan for and have the capability to ensure available, reliable, and quality power to continuously accomplish essential DOD missions from military installations and facilities. This includes aligning energy requirements to critical DOD missions, appropriately sizing energy generation systems, and maintaining, fueling, and testing energy generation systems and infrastructure. DOD Components are also required to perform periodic vulnerability assessments and audits to assess the risk of energy disruptions on military installations, and implement remedial actions to remove unacceptable energy resilience risks. DOD components are fully in compliance with DOD policy and every military installation currently has backup generators to operate our essential missions in the event of a grid disruption.

The DOD also has an on-going study that will establish a potential framework to assess different energy resilience solutions on our military installations. The study's analysis can be utilized by the Department to ensure the implementation of cost-effective and reliable energy resilience solutions at military installations.

Ms. HAMMACK. It is Department of Defense policy that DOD Components shall take necessary steps to ensure energy resilience on military installations. DOD Components are required to plan for and have the capability to ensure available, reliable, and quality power to continuously accomplish essential DOD missions from military installations and facilities. This includes aligning energy requirements to critical DOD missions, appropriately sizing energy generation systems, and maintaining, fueling, and testing energy generation systems and infrastructure. DOD Components are also required to perform periodic vulnerability assessments and audits to assess the risk of energy disruptions on military installations, and implement remedial actions to remove unacceptable energy resilience risks. The Components are fully in compliance with DOD policy, and every military installation currently has backup generators to operate our essential missions in the event of a grid disruption.

The DOD also has an ongoing study that will establish a potential framework to assess different energy resilience solutions on our military installations. The study's analysis can be utilized by the Department to ensure the implementation of cost-effective and reliable energy resilience solutions at military installations.

The Army has demonstrated the ability to continue full base operations, when disconnected from the power grid, at Fort Drum, NY. In September 2014, a contract was awarded to ReEnergy Black River LLC for the provisioning, production, purchase, and delivery of Fort Drum's on-site electricity requirements by a biomass generation facility. To test the system, Fort Drum was fully disconnected from the grid in November 2015. The project performed as anticipated, providing the installation with 100 percent of its energy requirements.

VETERAN OPPORTUNITIES

26. Senator HIRONO. Mr. Potochney, I offered an amendment that was added to the pending energy bill to boost the involvement of veterans in a new energy workforce training pilot program. I would like to ensure that veterans are able to take advantage of the job opportunities associated with the rapidly expanding clean energy market, which a witness at a recent Energy and Natural Resource Committee hearing reminded us is a $300 billion global market annually. Do the services have

a sufficient number of building managers trained in managing, energy efficiency, cybersecurity, smart meters, and other building technologies? If not, what are the services doing to attract and train veterans for building manager jobs?

Mr. POTOCHNEY. The Military Services review all workforce requirements (i.e. number of personnel, required experience and training) to support their infrastructure, to include building managers trained in managing energy, cybersecurity, smart meters, and other building technologies. Currently there are veterans in various jobs such as energy managers and building managers. Even though we are not aware of any programs that specifically target veterans for building manager jobs, all energy/cyber security billets are open to veterans. As with each vacancy, we will follow the veteran hiring policies which have been established, and evaluate each applicant and select the best person available for the position.

APPENDIX A

List of MilCon Projects Added

Added MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	PB16	PB17
ARMY	Military Construction, Army	COLORADO	Fort Carson, Colorado	Unmanned Aerial Vehicle Hangar	-	5,000
	Mil. Con., Army National Guard	WYOMING	Laramie	National Guard Readiness Center	-	21,000
	Mil. Con., Army Reserve	CALIFORNIA	Fort Hunter Liggett	Emergency Services Center	-	21,500
				Transient Training Barracks	-	19,000
		VIRGINIA	Dublin	Organizational Maintenance Shop/AMSA	-	6,000
		WISCONSIN	Fort Mccoy	AT/MOB Dining Facility	-	11,400
ARMY Total					-	83,900
NAVY	Military Construction, Navy	CALIFORNIA	Coronado	Grace Hopper Data Center Power Upgrades	-	10,353
			San Diego	Energy Security Hospital Microgrid	-	6,183
			Seal Beach	Missile Magazines	-	21,007
		FLORIDA	Eglin AFB	WMD Field Training Facilities	-	20,469
		GUAM	Joint Region Marianas	Hardening of Guam POL Infrastructure	-	26,975
		HAWAII	Barking Sands	Upgrade Power Plant & Electrical Distrib Sys	-	43,384
		JAPAN	Kadena AB	Aircraft Maintenance Complex	-	26,489
		MAINE	Kittery	Unaccompanied Housing	-	17,773
				Utility Improvements for Nuclear Platforms	-	30,119
		NEVADA	Fallon	Air Wing Simulator Facility	-	13,523
		NORTH CAROLINA	Cherry Point Marine Corps Air Station	Central Heating Plant Conversion	-	12,515
		SOUTH CAROLINA	Parris Island	Recruit Reconditioning Center & Barracks	-	29,882
		WASHINGTON	Bangor	Service Pier Electrical Upgrades	-	18,939
			Bremerton	Nuclear Repair Facility	-	6,704
				Submarine Refit Maint Support Facility	-	21,476
		WORLDWIDE UNSPECIFIED	Various Worldwide Locations	Triton Forward Operating Base Hangar	-	41,380
	Mil. Con., Naval Reserve	NEW YORK	Brooklyn	Electric Feeder Ductbank	-	1,994
NAVY Total					-	349,155

Added MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	PB16	PB17
AF	Military Construction, Air Force	ALASKA	Clear AFS	Fire Station	-	20,000
			Eielson AFB	F-35A Aircraft Weather Shelter (Sqd 2)	-	82,300
				F-35A Hangar/Squad Ops/AMU Sq #2	-	42,700
			Joint Base Elmendorf-Richardson	Add/Alter AWACS Alert Hangar	-	29,000
		ARIZONA	Luke AFB	F-35A Squad Ops/Aircraft Maint Unit #5	-	20,000
		CALIFORNIA	Edwards Air Force Base	Fire Station/Flightline	-	24,000
		COLORADO	Buckley Air Force Base	Small Arms Range Complex	-	13,500
		DELAWARE	Dover AFB	Aircraft Maintenance Hangar	-	39,000
		FLORIDA	Eglin AFB	Flightline Fire Station	-	13,600
			Patrick AFB	Fire/Crash Rescue Station	-	13,500
		GEORGIA	Moody AFB	Personnel Recovery 4-Bay Hangar/Helo Mx Unit	-	30,900
		GERMANY	Ramstein AB	37 AS Squadron Operations/Aircraft Maint Unit	-	13,437
			Spangdahlem AB	EIC - Site Development and Infrastructure	-	43,465
		GUAM	Joint Region Marianas	APR - Munitions Storage Igloos, Ph 2	-	35,300
				APR - SATCOM C4I Facility	-	14,200
				Block 40 Maintenance Hangar	-	31,158
		JAPAN	Kadena AB	APR - Replace Munitions Structures	-	19,615
			Yokota AB	C-130J Corrosion Control Hangar	-	23,777
				Construct Combat Arms Training & Maint Fac	-	8,243
		MARIANA ISLANDS	Unspecified Location	APR - Land Acquisition	-	9,000
		MARYLAND	Joint Base Andrews	21 Points Enclosed Firing Range	-	12,000
		MASSACHUSETTS	Hanscom AFB	System Management Engineering Facility	-	20,000
		MONTANA	Malmstrom AFB	Missile Maintenance Facility	-	14,500
		NEVADA	Nellis AFB	F-35A POL Fill Stand Addition	-	10,500
		NEW MEXICO	Cannon AFB	North Fitness Center	-	21,000
			Holloman AFB	Hazardous Cargo Pad and Taxiway	-	10,500
			Kirtland AFB	Combat Rescue Helicopter (CRH) Simulator	-	7,300
		OHIO	Wright-Patterson AFB	Relocated Entry Control Facility 28A	-	12,600
		TURKEY	Incirlik AB	Airfield Fire/Crash Rescue Station	-	13,449
		United Arab Emirates	Al Dhafra	Large Aircraft Maintenance Hangar	-	36,400
		UNITED KINGDOM	Croughton RAF	Main Gate Complex	-	16,500
		UTAH	Hill AFB	649 MUNS Munitions Storage Magazines	-	6,500
				649 MUNS Precision Guided Missile MX Facility	-	8,700
				649 MUNS STAMP/Maint & Inspection Facility	-	12,000
				Composite Aircraft Antenna Calibration Fac	-	7,100
				F-35A Munitions Maintenance Complex	-	10,100
		VIRGINIA	Joint Base Langley-Eustis	Air Force Targeting Center	-	45,000
				Fuel System Maintenance Dock	-	14,200
		WASHINGTON	Fairchild AFB	Pipeline Dorm, USAF SERE School (150 RM)	-	27,000
	Mil. Con., Air National Guard	HAWAII	Joint Base Pearl Harbor-Hickam	F-22 Composite Repair Facility	-	11,000
		NORTH CAROLINA	Charlotte/Douglas IAP	C-17 Corrosion Control/Fuel Cell Hangar	-	29,000
				C-17 Type III Hydrant Refueling System	-	21,000
		VERMONT	Burlington IAP	F-35 Beddown 4- Bay Flight Simulator	-	4,500
	Mil. Con., Air Force Reserve	NORTH CAROLINA	Seymour Johnson AFB	KC-46A ADAL Bldg for AGE/Fuselage Training	-	5,700
				KC-46A ADAL Squadron Operations Facilities	-	2,250

Added MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	PB16	PB17
		PENNSYLVANIA	Pittsburgh IAP	KC-46A Two Bay Corrosion/Fuel Cell Hangar	-	90,000
				C-17 ADAL Fuel Hydrant System	-	22,800
				C-17 Const/OverlayTaxiway and Apron	-	8,200
				C-17 Construct Two Bay Corrosion/Fuel Hangar	-	54,000
AF Total					**-**	**1,081,694**

Added MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	PB16	PB17
DHA	Military Construction, Defense-Wide	GEORGIA	Fort Gordon	Medical Clinic Replacement	-	25,000
		JAPAN	Kadena AB	Medical Materiel Warehouse	-	20,881
		MAINE	Kittery	Medical/Dental Clinic Replacement	-	27,100
		NORTH CAROLINA	Camp Lejeune, North Carolina	Dental Clinic Replacement	-	31,000
		TEXAS	Sheppard AFB	Medical/Dental Clinic Replacement	-	91,910
DHA Total					**-**	**195,891**
DODEA	Military Construction, Defense-Wide	DELAWARE	Dover AFB	Welch ES/Dover MS Replacement	-	44,115
DODEA Total					**-**	**44,115**
MDA	Military Construction, Defense-Wide	ALASKA	Fort Greely	Missile Defense Complex Switchgear Facility	-	9,560
		WAKE ISLAND	Wake Island	Test Support Facility	-	11,670
MDA Total					**-**	**21,230**
NSA	Military Construction, Defense-Wide	MARYLAND	Fort Meade	Access Control Facility	-	21,000
NSA Total					**-**	**21,000**
SOCOM	Military Construction, Defense-Wide	CALIFORNIA	Coronado	SOF Special RECON Team ONE Operations Fac	-	20,949
				SOF Training Detachment ONE Ops Facility	-	44,305
		JAPAN	Kadena AB	SOF Simulator Facility (MC-130)	-	12,602
SOCOM Total					**-**	**77,856**
Defense-wide Total						**360,092**
Grand Total						**1,674,841**

List of MilCon Projects Removed

Removed MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	FB16	FB17
ARMY	Military Construction, Army	GERMANY	Landstuhl	Administrative Building	40,000	-
			Stuttgart	Commissary	32,000	-
		INDIANA	Crane Army Ammunition Plant	Shipping and Receiving Building	22,000	-
		KOREA	Camp Humphreys	Unmanned Aerial Vehicle Hangar	23,000	-
		TEXAS	Fort Hood, Texas	Battalion Complex	31,000	-
		VIRGINIA	Joint Base Langley-Eustis	Aircraft Maintenance Instructional Bldg	32,500	-
	Mil. Con., Army National Guard	MARYLAND	Ellicott City	National Guard Readiness Center	19,000	-
		MINNESOTA	Arden Hills	National Guard Readiness Center	29,000	-
		NEW MEXICO	Las Cruces	National Guard Readiness Center	8,800	-
		WASHINGTON	Olympia	National Guard Readiness Center	31,000	-
	Mil. Con., Army Reserve	ARIZONA	Phoenix	Army Reserve Center	27,000	-
		CALIFORNIA	Barstow	Army Reserve Center/Storage/OMS/Land	12,600	-
			Marina	AR Center Training Building	6,800	-
		NEW YORK	Fort Totten	Add/Alt Army Reserve Center	36,000	-
ARMY Total					360,500	-
NAVY	Military Construction, Navy	CALIFORNIA	Camp Pendleton, California	Potable Water Transmission Line	22,258	-
			Miramar	Airfield Taxiway	2,188	-
				KC130J Enlisted Air Crew Trainer Facility	9,037	-
			Point Loma Annex	Sewer Equalization Tank	10,536	-
			Point Mugu	Electrical Distribution System Repairs	15,113	-
			San Diego	BAMS Forward Operating Base 3 rd Fleet	44,358	-
			Twentynine Palms, California	Communication Infrastructure Upgrade	3,178	-
		CONNECTICUT	New London	MCTOG/MDLOG/Intelligence Complex	36,033	-
		DIEGO GARCIA	Diego Garcia	Industrial Control System	9,273	-
		DJIBOUTI	Camp Lemonier, Djibouti	Power Plant	82,438	-
		FLORIDA	Pensacola	Medical/Dental Center	43,825	W
		GUAM	Apra Heights	NATTC A-School Dormitory	45,942	-
			Joint Region Marianas	Public Route 6 Repairs	5,193	-
				AIRCRAFT HANGAR #2 - JSF	104,772	-
				CORROSION CONTROL HANGAR	38,729	-
				MALS FACILITIES	71,732	-
				TIN INFRA UPGRADES - BIOSEC	22,617	-
				Water PH 1	49,758	-
		GUANTANAMO BAY, CUBA	Guantanamo Bay	Energy Security & Power Plant Recap	42,777	-
		HAWAII	Kaneohe Bay	LHD Pad Conversion and MV-22 LZ Improvements	4,042	-
				Van Pad Modernization	8,530	-
		JAPAN	Iwakuni	South VTOL Pad	9,305	-
		MAINE	Kittery	Mechanical Shop Consolidation	19,811	-
		MARIANA ISLANDS	Guam	EOD Compound	36,368	-
				X-ray Wharf Improvements, Berth 2	55,412	-
		RHODE ISLAND	Newport	Industrial Control System	16,666	-
		SOUTH CAROLINA	Beaufort	Aircraft Maintenance Hangar	82,633	-
				Cryogenics Facility	4,918	-
				Jet Fuel Storage Expansion	28,104	-
				JSF Operations Support Facility	3,952	-

W Moved from Base to OCO

Removed MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	PB18	PB17
		VIRGINIA	Joint Expeditionary Base Little Creek - Story	Industrial Control Infrastructure	9,535	-
			Portsmouth	Ships Maintenance Facility BLDG 510 Conversio	12,850	-
				Smart Energy PNSY Industrial Control System	14,282	-
			Quantico	E-LMR Communication Towers	1,589	-
				TBS Fire Station	13,367	-
		WASHINGTON	Whidbey Island	NEGT Generation Jammer	4,352	-
		WORLDWIDE UNSPECIFIED	Various Worldwide Locations	SW Smart Grid	36,071	-
	Mil. Con., Naval Reserve	IDAHO	Boise	Reserve Vehicle Maint Facility - Boise, ID	16,239	-
NAVY Total					1,009,288	-
AF	Military Construction, Air Force	ALASKA	Eielson AFB	F-35A ADAL A-10 Shelters/Three Extensions	13,000	-
				F-35A Add to AGE Facility	1,000	-
				F-35A Add to Corrosion Control Hangar	5,000	-
				F-35A Add to POL R-11 Maintenance Bay	1,000	-
				F-35A Renovate Aggressor Squad Ops	2,000	-
				F-35A Upgrade Aggressor Shelters	10,000	-
				F-35A Upgrade Fuel Cell Hangar	2,000	-
				F-35A Upgrade Phase Shop	2,000	-
				F-35A Weapons Load Training	2,000	-
		ARIZONA	Luke AFB	Communications Facility	21,000	-
				F-35A Aircraft Maintenance Unit 5/6	23,000	-
				F-35A Squadron Operations Facility/Sq 5	11,000	-
		DISTRICT OF COLUMBIA	Jb Anacostia Bolling	Joint Air Defense Ops Center Ph 2	13,800	-
		KOREA	Kunsan AB	Transient Aircraft Parking	4,452	-
			Osan AB	Korea Air and Space Ops Center	64,260	-
		MARIANA ISLANDS	Saipan	APR - Parking Apron/Type III Hydrant	50,000	-
				APR - Seaport AF Bulk POL Storage #1	18,500	-
		MARYLAND	Joint Base Andrews	Consolidated Communications Center	48,000	-
				PAR Relocate Hazardous Cargo Pad	40,000	-
				PAR Relocate K9 Kennel	2,200	-
				PAR Repair Taxiway C & W	44,000	-
		NEW MEXICO	Holloman AFB	RPA Fixed Ground Control Station Facility	3,200	-
		NEW YORK	Fort Drum, New York	20 ASOS Expansion	6,000	-
		WORLDWIDE UNSPECIFIED	Various Worldwide Locations	APR - Enhance Resiliency Wedge 1	75,000	-
				European Intra Consolidation Wedge	367,180	-
		WYOMING	F. E. Warren AFB	Consolidated Squadron Ops/TRF Facility	24,200	-
	Mil. Con., Air National Guard	CALIFORNIA	South California Logistics Airport	Construct MQ-9 Conversion Facilities	9,300	-
		DELAWARE	New Castle County Airport	Replace Fuel Cell and Corrosion Control Hanga	11,100	-
		FLORIDA	Cape Canaveral Afs	NOAA Space Control Facility	6,100	-
		NEW YORK	Francis S. Gabreski Airport	Add to and Alter Maintenance Complex	8,300	-
		OHIO	Camp Perry	RED HORSE Logistics Complex	5,600	-
		SOUTH DAKOTA	Joe Foss Field	Aircraft Maintenance Shops	12,300	-
	Mil. Con., Air Force Reserve	WORLDWIDE UNSPECIFIED	Unspecified Worldwide Locations	KC-46A MILCON MOB 3	122,429	-
			Various Worldwide Locations	KC-46A MILCON MOB 3	25,198	-
AF Total					1,052,117	-

Removed MilCon Projects

Org	Account Title	State Country Title	Location Title	Line Item Title	PB16	PD17
DEFW	Military Construction, Defense-Wide	BELGIUM	Brussels	NATO Headquarters Facility	7,120	-
DEFW Total					7,120	-
DHA	Military Construction, Defense-Wide	GERMANY	Geilenkirchen AB	Medical Clinic Replacement	22,506	-
		OKLAHOMA	Fort Sill	Behavioral Health Clinic Addition/Alteration	7,368	-
		TEXAS	Fort Bliss	Blood Donor Center Replacement	9,828	-
DHA Total					39,702	-
DLA	Military Construction, Defense-Wide	GUAM	Andersen AFB	Construct Truck Un-load & Pumphouse	17,225	-
		ITALY	Sigonella	Construct Hydrant System	13,666	-
		UTAH	Hill AFB	Replace POL Pumphouse	9,200	-
DLA Total					40,091	-
DODEA	Military Construction, Defense-Wide	JAPAN	Yokosuka	Kinnick HS - Replace School	130,102	-
		KENTUCKY	Fort Campbell, Kentucky	Barsanti ES-Addition	4,958	-
				Jackson ES - replace school	46,970	-
DODEA Total					182,028	-
SOCOM	Military Construction, Defense-Wide	CALIFORNIA	Coronado	SOF Basic Training Command	95,137	-
		CONUS CLASSIFIED	Classified Location	Battalion Complex, Ph 1	64,364	-
		HAWAII	Pearl Harbor	SOF Undersea Operational Training Facility	47,098	-
		NORTH CAROLINA	Fort Bragg	SOF Human Performance Training Center	15,348	-
SOCOM Total					221,917	-
WHS	Military Construction, Defense-Wide	VIRGINIA	Pentagon	Pentagon Corridor 8 Screening Facility	5,600	-
				Security Updates - RRMC	7,300	-
WHS Total					12,900	-
Defense-wide Total					503,755	-
Grand Total					2,915,883	-

\1 Moved out of Base Budget to OCO Budget for FY 2017

\1 Moved from Base to OCO